420-WP-007-001

ECS Response to NASA IDR DID 304 SDPS/CSMS Comments

White paper - Not intended for formal review or Government approval.

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Abstract

This white paper is a response to comments received from ESDIS regarding the SDPS/CSMS Requirements Specification (DID 304) published for Release B's IDR.

Keywords: Level-4, Requirement, Segment Requirements Specification, SDPS, CSMS

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1. Introduction

1.1 Purpose

The purpose of this white paper is to respond to comments made by NASA in a letter dated January 22, 1996. The letter was from Rebecca L. Ragusa to D. A. Laird. The subject line of that letter was "NAS5-60000; DID 304-CD-005-001 Release B CSMS/SDPS Requirements Specification". These comments were made in conjunction with the disapproval of the IDR version of the CSMS/SDPS Requirements Specification (DID 304).

1.2 Organization

The letter referenced in section 1.1 consisted of two memos - one from Deborah Blake and Hal Folts to Becky Ragusa, the other from IV&V to Debbie Blake. Each of these memos is addressed through separate tables presented in Chapter 2 with comments in the left column and ECS's responses to these comments in the right column. The first table (Table 2.2-1) contains comments from ESDIS. The second table (Table 2.3-1) contains comments from the EOSDIS IV&V Team.

1.3 Review and Approval

This White Paper is an informal document approved at the Office Manager level. It does not require formal Government review or approval.

Most responses presented here are reflected in the March 1 version of the RTM requirements database. Some comments and their responses cannot be reflected in the RTM database. Comments such as the grouping of requirements would not be apparent until the requirements are published again. This publication is planned for May 30, 1996 as the Release B SDPS/CSMS Segment Requirements Specification, DID 304-CD-005-001.

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2. ECS Response

2.1 Introduction

Section 2.2 presents the ECS response to comments in an ESDIS memo dated Dec. 18, 1995 from Deborah Blake and Hal Folts to Becky Ragusa regarding the ESDIS review of the IDR version of DID 304, Release B CSMS/SDPS Requirements Specification (304-CD-005-001). Introductory text from that letter precedes the table. This memo was packaged as the first part of the letter referenced in section 1.1.

The second table (Table 2.3-1) in section 2.3 presents the ECS response to comments in a memo dated 11/15/95 from the EOSDIS IV&V Team to Debbie Blake regarding Review of the Release B SDPS/CSMS Requirements Specification, October 1995 (304-CD-005-001). Introductory text from that memo precedes the table. Comments were included in this memo which addressed Release B acceptance test cases and their related L3 and IRD Requirements by Release (RbRs). Since acceptance test cases were not part of the Release B CSMS/SDPS Requirements Specification, no responses to these comments have been provided. This memo was packaged as the second part of the letter referenced in section 1.1.

NOTE: The "ESDIS Comment" column was scanned in from hard copy and, therefore, may contain typographical errors as a result of this process which may not have been detected and corrected manually.

2.2 ESDIS Comments

Date: December 13, 1995

To: Becky Ragusa

From: Deborah Blake and Hal Folts

Subject: DID 304, Release B CSMS/SDPS Requirements Specification (304-CD-005-001)

After review of the Level 4 requirements contained in the subject DID, the government has determined that the document is not acceptable. HAIS shall incorporate the attached comments and provide a snapshot of the RTM database and a white paper addressing the comments by March 1, 1996. Further, a new version of DID 304 shall be published no later than May 30, 1996.

The document review process identified the following major discrepancies, details of which are provided in the attached comments [these comments appear in Table 2.1-1]:

> In some cases the Level 4 requirements do not provide complete coverage of the Level 3 requirements as stated in the F&PRS.

In addition, the allocation of level 3 requirements to subsystems and the identification of the appropriate level 4 is incomplete.

Cases exist where the interpretation of the level 3 is not consistent with the intent of the F&PRS.

The traces in Appendix C are not complete and in some cases are incorrect; as a result it is difficult to verify the coverage of the level 3 requirements.

All TBDs should be resolved. A justification and a work off plan should be provided in cases where a TBD must be included in the specification. A table documenting all TBDs and a work off plan should be included in an appendix.

Some level 4 requirements lack specific information such as format, fields, values, interface references, data sources (reference documents, etc.) and definition of functions (e.g. accept, read, process, determine, check).

The attached comments have been categorized as follows:

1) Incorrect or incomplete interpretation of F&PRS

2) Untraced Level 3 requirements

3) Incorrectly traced requirements

4) Other comments

In addition, to facilitate discussion of comments with the originators as needed, the comment sources have been identified as follows:

KM - Ken McDonald

BP - Beth Pumphrey

RD - Ruth Duerr

RP - Robin Pfister

DM - Dan Marinelli

BK - Ben Kobler and ESDIS DADS team

Table 2.2-1. ECS Responses to ESDIS Comments

ESDIS Comment	ECS Response
Incorrect or Incomplete Interpretation of F&PRS	
CIDM	
1) IMS 0010 - The IMS availability requirement only traces to the LAN/WAN requirements, not the CIDM components. (KM)	Agreed. Requirements have been added for ADSRV, DDICT, DIMGR, LIMGR, and GTWAY CIs to provide 24 hour access to ECS services. Interpretation should be that the services are available at each DAAC all the time, within the RMA constraints. No Client impact.
2) IMS 0340 - Content-based summary metadata only traces to DSS product specific metadata requirements. The display of this metadata should also be specified in the client sections. (KM)	Specific CLS L4 traces have been added to the 3/1 requirements baseline.
3) IMS 510 - Advanced planning aids are completely dropped. These are requirements and were addressed in the Hughes ECS proposal. (KM)	DMS-20920 addresses the storage relationship of phenomenology search criteria to data in the Data Server. DMS-20920 was allocated to Release C however. The trace to Release B has been reinstated. New requirements will be added or traced to for B and C as this information is stored in the DDICT CI.
4) IMS 0720 - The ad hoc browse requirement only traces to the issuance of an ad hoc product request...decomposition should include display as a product selection aid. (KM)	Specific CLS L4 traces have been added to the March 1 requirements baseline.
5) IMS 1070 - DAR contents described in Level 4s misses much information. (KM)	Specific CLS L4 traces have been added to the March 1 requirements baseline.
6) IMS 1400-1410 - Virtual IMS requirements only trace to API requirements. This misses the portability, modularity requirements that are implied by the virtual IMS. (KM)	S-INS-00404 has been traced to IMS-1400 in the March 1 requirements baseline. This additional requirement trace addresses the need to facilitate loading of data from the local database into the ECS database. However, the comments seem to allude more to the broader LDAS requirements. The issues of portability and modularity have to do with the process of identifying the minimum set of ECS architectural components (both DSS, COTS, and infrastructure components) that satisfies the LDAS package requirement in SCF-0290. The SCF ECS IRD documents how the LDAS is supposed to function. While IMS-1400 and IMS-1410 relate to the implementation of LDAS, its scope is restricted to use of the DSS COTS DBMS technology, the ability to define "local" metadata using that technology, and the ability to load the "local database" data back into the ECS database.

ESDIS Comment	ECS Response
7) The suite of requirements that address the interface which users will access through direct dial-up from a dumb terminal/modem/phone-line access (page 4-31, section 4.2.4.2.17) is not at a sufficient level of detail or completeness. For example, will there [be] novice, intermediate and expert modes for this? what are the search, retrieval, manipulation and display functions to be supported? (RP)	The dumb terminal access issue is being revisited. In particular, ESDIS has proposed a Web interface in place of a CHUI Creation of L4s is pending resolution on this issue.
8) The following two level-3 requirements were not in the sections on which I did a detailed review but they were areas of particular interest/curiosity: IMS-0150 (Uniform user interfaces by user class): Level-4s do not adequately address this level-3. Clarification on the intent may be required but many of the level-4s completely miss the mark. Also, in appendix C, level-4 S-CLS-01510 supposedly maps to this but it's not specified in the main part of the document. (RP) IMS-0160 (Support for novice, intermediate and expert users): Level-4s are insufficient as they do not cover this level-3 requirement. Also, in Appendix C, 6 level-4s supposedly map to this level-3 but only one n(S-CLS-12970) of them is stated in the spec - the others are missing (S-CLS-12920, 30, 40, 50, and 60). The one that is included only addresses novice users.	Specific CLS L4 traces have been added to the March 1 requirements baseline. S-CLS-01510 "The WKBCH CI interface to access communications networks shall conform to the ECS style guidelines." appears in section 4.2.4.3, but is not in sequential order which is probably why the reviewer did not find it. S-CLS-12920, 30, 40, 50, and 60 were allocated Release C which is why they were not listed in the spec. They have been reallocated to Rel B in the March 1 requirements baseline.
9) IMS-0480 : Level-4 requirements do not fully cover this level-3 as they address storing documents on the users local workstation rather than users (guide and reference document authors) to submit documents to the document data server as was the original intention of this requirement. (RP)	New CLS L4s added and traced in the March 1 requirements baseline. Otherwise IMS-0480#B is already mapped to many DDSRV CI requirements: S-DSS-10170, S-DSS-10200, S-DSS-10204, S-DSS-04476, S-DSS-10241, S-DSS-10209, S-DSS-10202, S-DSS-10206, S-DSS-10208 In particular S-DSS-04476 and S-DSS-10241 provide general requirements for storage of documents and "descriptive data" (which is the document metadata) in the DDSRV. The rest of the requirements describe the particular formats of documents that are accepted for storage on the DDSRV.

ESDIS Comment	ECS Response
10) IMS-0490: Level-4s address submission of HTML and ASCII documents only, they do not address submission of Microsoft Word, Interleaf, Postscript and WordPerfect documents. (RP) HAIS needs to add requirements to the effect of The Client must provide access to a tool that allows users to submit documents in the following formats: Microsoft Word, Interleaf, Postscript and WordPerfect. (NOTE: formats were taken from level-3 IMS0490). (RP) Also, Level-4s are geared toward the storage and ingest of documents themselves in the DDSRV but do not address specification and ingest of metadata related to documents (e.g. URs need assigned and other metadata may need specified and the appropriate relational tables need population). (RP)	Specific CLS L4s added/edited and traced in the March 1 requirements baseline. But there is already a mapping of DSS Level-4s that address submission of Microsoft Word, Interleaf, Postscript, and WordPerfect documents: S-DSS-10202 (Microsoft Word) S-DSS-10206 (Interleaf) S-DSS-10209 (Postscript) S-DSS-10208 (WordPerfect) Also, S-DSS-04476 and S-DSS-10241 provide requirements for storage of "descriptive data" (which is the document metadata) in the DDSRV.
11) IMS-0500: Level-4s need better definition. This is a good candidate for a prototype (e.g. PW2). ISSUE: this requirement is mapped to the level-4 S-CLS-10620 which as stated above under IMS0490 lists a capability to view documentation in various formats. S-CLS-10620 does not cover the full required set of formats listed in IMS0490 - it adds PDF but omits Interleaf which is one of the Level-3 requirements. (RP)	CLS L4 traces now exist in the March 1 requirements baseline. Edited S-CLS-10620 text.
12) IMS-0510: Level-4s need better definition. This is a good candidate for a prototype (e.g. PW2). Level-4s concentrate on the DAR aspect and address geographic and temporal reference aids but completely omit support for the portion of the level-3 that calls out "...capability to map specified geophysical parameters to appropriate instrument and/or standard product, descriptive information on instruments and geophysical parameters available in standard products, climatology information , phenomenology information, and Spacecraft location projections [outside of DARs]". (RP)	New CLS L4s were added and traced in the March 1 requirements baseline.

ESDIS Comment	ECS Response
13) IMS-0530 : Level-4s only address hierarchical searching of HTML documents. They must also address search of all formats specified in IMS0490. In addition, it doesn't address search mechanisms which must include those outlined in IMS-0630 and IMS-0560. Level-4s concerning search of advertisements are also insufficient as they only address search by text strings. In addition it doesn't address search mechanisms which must include those outlined in IMS-0630 and IMS-0560. (RP)	IMS-0490 addresses the ingest format of documents. Documents are ingested into the DDSRV in these formats, but are served to the client in HTML. Therefore, no CLS requirements have to be related to the searching of these other formats. DMS and IOS L4s were defined related to Earth Science Query Language search expressions and then each CI was said to accept search requests in this language. Added new CLS L4s and traces in the March 1 requirements baseline.
14) IMS-0540: The level-3 addresses display of PGS processing schedules which implies the user can request and retrieve them from storage. These request and retrieval requirements do not exist in the level-4s that map to this level 3. (RP)	Added new CLS L4 traces in the March 1 requirements baseline.
15) IMS-0545: This implies the product history information is relational. In current data models, product history is a flat file. HAIS needs to demonstrate how ECS will support this requirement in release B. Two key scenarios are: once a product is identified, search it's product history to determine all ancestor products. once a product is identified, search the product history database to determine all progeny products. Also, IMS-1740 and IMS-0970 imply searching by descriptive and other related or cross-referenced attributes such as dataset and requesting user. (RP)	The text of S-DSS-03210 was changed to include Production History's associated metadata. IMS-0545 was also mapped to: S-DSS-03210 and S-DSS-04670. The additional mappings cover the Release B search requirements per the scenarios.

ESDIS Comment	ECS Response
16) IMS-0550: Level-4s include many peripherally related level-4 requirements. None address the topic of it's original intention which is to provide any user - novice, intermediate or expert - access to data and services without having to know the internals - system, architecture, languages (e.g. SQL) and formats, with the possible exception. Having addressed it broadly with many (53) peripheral requirements, there are a couple that address specificity in some areas and omits other peripheral areas altogether. E.g. S-CLS-10710 addresses only registered user access to ECS data and services - this must be extended to unregistered (guest) users. Also S-DSS-03630 addresses metadata associated with QA statistics - other metadata (e.g. production history) are not addressed. HAIS should refocus on the intent of the level-3 requirement and re-address it. (RP)	Deleted IOS links to IMS-0550 as they really did not address the issue. Added one L4 and mapped to IMS-0550 which allows the client to search the DDICT based on a conceptual schema thus hiding the actual physical structure of the underlying database. No fixes made or required for CLS-10710. Guest is actually a registered user that is assigned limited privileges. The basic setup based on the L4s will allow browse of public only advertisements. This is configurable as indicated by IMS-0085 which states "The IMS shall provide unregistered users access to ECS services as authorized by the SMC." At any point, based on DAAC/SMC policy a variety of guest accounts could be given out with varying privileges wrt data access. All of the CLS "peripherally related" requirements are expected to minimize required user knowledge of the system.
17) IMS-0570: Level-4s do not address the topic of incremental search at all. (Even though Mike Moore supplied 8 "level-3.5s" to clarify this topic a while back.) (RP)	Incremental search L4s (S-DMS-00115 and S-DMS-10115) have been added for the LIMGR and DIMGR CIs.

ESDIS Comment	ECS Response
18)**[a]** IMS-0580: Level-4s need better definition as they do not completely cover the intent of this level-3 requirement. This level-3 is a good candidate for a prototype (e.g. PW2). **[b]** This maps to level-4 S-CLS-10350 which contains a "TBD". These TBD items need to be specified. **[c]** Level-4s primarily address overlays on coverage maps but ignore browse. **[d]** Also the use of overlays in other search/selection processes such as the subsetting process, is not addressed. **[e]** S-CLS-13570 addresses indicating a polygon on a map overlay. Graphical selection of a point and of a rectangle (with automatic parallel lat/lon sides) also need to be addressed. **[f]** S-CLS- 13720 only addresses selection of data granules from a coverage map for delivery - selection from browse display is not addressed. **[g]** S-CLS-13970 only addresses projection of the selection map on a flat equatorial projection or north or south polar projections - it also needs to address projection of the selection map on a sphere that is "spinnable". **[h]** S-CLS-13990 is vague. What is meant by "resulting coverage? - is it retrieved granules? or just the resulting selection area? (RP)	**[a]** CLS L4 traces added in the March 1 requirements baseline. **[b]** TBD no longer appears in S-CLS-10350. **[c]** Basically, there is no current coverage capability during browse. Current evaluations of STK/PL in accordance with the ASTER FRMO req'ts will enable us to determine the feasibility of coverage maps during browse (e.g., the integration of EOSView w/ coverage maps). **[d]** Added new L4s and traces in the March 1 requirements baseline. **[e]** Added traces to L4s in the March 1 requirements baseline. **[f]** Basically, there is no current coverage capability during browse. Current evaluations of STK/PL in accordance with the ASTER FRMO req'ts will enable us to determine the feasibility of coverage maps during browse (e.g., the integration of EOSView w/ coverage maps). **[g]** IMS-0580 does not specify or imply projecting maps on a sphere - spinnable or otherwise. ECS is willing to discuss this issue further, but as of now does not accept it as a requirement. **[h]** L4 text modified in the March 1 requirements baseline.
19) IMS-0630: Level 4s only address entry of geographical metadata and text matching and Boolean operators but do not address relational operators, attribute values, search strings, and combinations thereof as stated in this level-3. HAIS needs to describe how ECS will support Relational Operators in an Object Oriented Data Model. (RP)	Added new CLS L4s and traces in the March 1 requirements baseline. DMS requirements added to accept queries of the types listed in IMS-0630 and IMS-0650. Interpretation of the relational operators in the L3s is that it meant relational operators such as and, or, not. The interpretation was that this had nothing to do with relational database operators.
20) IMS-0640: Level-4s must also include text input of point, point with lat/lon distances from the point, and polygons as well as graphical input of point and simple rectangle. (RP)	Added CLS traces as necessary in the March 1 requirements baseline.
21) IMS-0650: This Level-3 refers to searching of character (set) string but level-4s refer to substring which may imply partial words - not phrases as intended in the level-3. This needs clarification. (RP)	Modified S-CLS-10120 text in the March 1 requirements baseline.

ESDIS Comment	ECS Response
22) IMS-0665: Level-4s S-DMS-10760 and S-DMS-30760 are not only identical, they're both confusing as stated and need clarification. (RP)	Agreed. These requirements are reworded for both clarity and to note the different CIs that they relate to. They appear to be identical, but actually relate to different CIs, so should be reworded - "The DIMGR CI shall...", etc. Reworded the one in the LIMGR as well.
23) IMS-0670: S-CLS-12750, S-CLS-12770, and S-CLS-12780 map to this level-3 but do not exist in the requirements specification in main part of the document. (RP)	These three CLS L4 requirements regarding default instructions for event notification, were allocated to Release C previously which is why they did not appear in the main part of the document. They have since been reallocated to Release B, so they will appear in the Requirements Specification.
24) IMS-1330: Level-4s address search request status but not data processing status which is the specific topic of this level-3. Other level-3s (e.g. IMS-1300, IMS-1310, IMS-1320) address search request status. For this particular level-3 (IMS-1330), this is a case where the level-4s are more general than the level-3s. (RP)	CLS L4s text modified appropriately in the March 1 requirements baseline.
25) IMS-1360: This level-3 calls for users to request and receive the current status of their account balance, but the level-4 pertaining to this is more general in allowing the user to "obtain" this status. "Obtain" should be changed back to the more specific statements of "request and receive" as "obtain" can imply that a request isn't made, or that receiving may require to be off-line. (RP)	CLS L4s text modified appropriately in the March 1 requirements baseline.
26) IMS-1620: Some information types aren't collected in some subsystems (e.g. SDSRV? GTWAY?) No Account Management data is collected in the ADSRV CI or in the DDICT CI. No Performance Management data are collected in the ADSRV CI. No Scheduling Management data are collected in the ADSRV CI. No Configuration Management data are collected in the ADSRV CI. In the level-4s the LIMGR CI doesn't collect fault Management data. There are no CLS (e.g. Workbench) level-4 requirements at all. (RP)	Agree. DMS and IOS L4s are updated for consistency across CIs and existing ones will be clarified with more precise descriptions of what is being collected. All are worded as being passed to MSS to support the integration of this data. DSS requirements added for coverage: DSS-00821 DSS-00822 DSS-00823 DSS-00824 DSS-00825 DSS-00826 DSS-00827 CLS requirements for collection of management data are still being finalized. For Release A this is based on the V0 client capabilities. Note that CLS is on the incremental track, and requirements are not final for it at CDR.

ESDIS Comment	ECS Response
27) IMS-1630: In the level-4s, ADSRV CIs is not listed and it probably should be included in this. Level 4s do not shed any light on what form the directives take and how the IMS is to respond. (RP)	Directives are in the form of documents that the IMS provides access to, not that it responds to. The ADSRV CI does have a requirement (S-IOS-00960) that the ADSRV CI shall provide the capability to display these documents to operator personnel. So no new L4s will be written. In the IDR Requirements Specification S-IOS-00960 was linked to IMS-1630#B in the L4 to RbR Appendix B, but erroneously this same link was not reflected in the RbR to L4 Appendix C.
28) IMS-1640: Seems that an SDSRV & GTWAY CIs capability to provide Maintenance status to the SMC is missing completely from the Level-4s. Shouldn't the ADSRV be providing to the SMC, status to include those that other CIs are providing? e.g. Integration, testing, and simulation status; Maintenance status, Logistics status; and Training Information. If so, it's not covered in the Level-4s. (RP)	Based on the ECS architecture all management and status information is collected by the MSS at each DAAC. Logically, the MSS should provide this information to SMC. Although S-IOS-00950 was linked to IMS-1640#B in the requirements database and showed up in the L4 to RbR Appendix C, this link was not reflected in the RbR to L4 appendix B. The link from IMS-1640#B to S-IOS-00940 has been added as have corresponding links to new L4s for the GTWAY CI.
29) IMS-1645: There is a suite of WKBCH requirements to collect these things [from] the user and there is a requirement that MSS shall receive them, but there is not a suite of requirements that the WKBCH will provide the information to MSS. (RP)	Modified S-CLS-14210 text and added traces.
30) IMS-1646: They address that the distribution activity logs will be sent from DDIST to SMC but it doesn't address the WKBCH collecting these and how they get passed from the CLS to DDIST (or other applicable components?) (RP)	IMS-1646 refers to "providing" a record of user data orders to the SMC which DDIST does. Although data orders are submitted from the CLS to DSS, IMS-1646 does not refer to this interface.
31) IMS-1650: In the suite of CIs involved in collecting/passing/receiving information specified in the level 3s. e.g. what about ADSRV, & DDICT, particularly in collecting/providing information on system utilization? The level 4s concerning the GTWAY CI logging the termination or successful completion of service requests but the LIMGR and DIMGR only log the termination of these requests - implying the LIMGR and DIMGR do not log the successful completion of service requests. (RP)	Agreed. The ADSRV and DDICT now have a L4 to cover item a) System utilization. Agreed. The LIMGR and DIMGR should address the logging of the successful completion of a service request. L4s have been added for this.

ESDIS Comment	ECS Response
32) IMS-1660 What about logging the successful completion of a session and of service requests in the LIMGR CI?	See previous answer.
What about logging the successful completion of service requests by the DIMGR and GTWAY CIs?	See previous answer.
What about logging session by the DIMGR and GTWAY CIs (e.g. initiation, suspension, resumption of suspended sessions, termination, and successful completion)?	See previous answer.
Question: Only SDSRV collects connect time, amount of user storage, seems that there is also a need for ADSRV, GTWAY, DDICT, LIMGR, and DIMGR to also collect these things?	Agreed. The DMS and IOS CIs will be updated to collect this information. The IOS and DMS CIs do not need to concern themselves with accounting information. They need to relate client sessions to a user's privileges but not the billing and accounting information. Per ESDIS policy, billing is based on pricing tables indexed by products and services. Dynamic resource collection at each CI is not required.
Question: Only SDSRV associates User Accounting Information with client sessions. Seems that there is also a need for ADSRV, GTWAY, DDICT, LIMGR, and DIMGR to also associate these things?	
This level-3 requirement maps to S-DSS-00770 which seems like a strange level-4. It says that the SDSRV shall utilize vendor supplied tools to analyze system CPU... which seems more like a design issue rather then a requirement.	This requirement clarifies that DSS has no plans to write specific tools to collect statistical data. All statistics supplied from the CPU, OS, Memory, and Network Performance perspective will be collected via tools provided by the vendor of choice (e.g. SGI or a 3rd party).
There is no suite of level-4 requirements that state the client (CLS) will capture any of the resources used and allocated. However S-DSS-01190 says that the operations staff shall be able to view the resources used and allocated by a client. It cant be viewed if it was never collected so this suite of level-4s need to be specified.	S-DSS-01190 provides operations personnel with a view of the SDSRV resources used by a client. SDSRV knows this and does not require CLS support.
Reporting needs to maintain a level of confidentiality - as on a need to know basis- how does this system support this?	Reporting of management data through MSS is controlled by only allowing operations personnel to access it via user ID and password.
What is the IMS/SMC interface, the inputs and outputs, the metadata required to support collection and reporting of this information, the format of each report? (RP)	The specifics of the interface are documented in the design documentation.
33) IMS-1645: Level-4 requirements are insufficient in coverage and detail to support this level-3 requirement. (RP)	Comment addressed through previous fixes (Item #29).

ESDIS Comment	ECS Response
34) IMS-1680: Level-4s state that only the LIMGR and DIMGR CIs support this function but it seems that the GTWAY, ADSRV and DDICT CIs also need to support this function. The level-4 requirements need to state who these "recipients" are (e.g. MSS, SMC CIs)...hopefully these aren't going directly to individuals. (RP)	Agreed. GTWAY, ADSRV, and DDICT have had L4s assigned to address this requirement using the same language as the existing ones for LIMGR and DIMGR. The recipients are not part of this requirement. This requirement is marked as a procedural requirement where an operator is expected to distribute the report. Who they distribute it to, has no impact on the development of the report.
35) IMS-1690: Level-4s omit distribution of GTWAY, ADSRV, DDICT, DDIST, and SDSRV utilization reports. S-DSS-00378 indicates involvement of staff in this process. It's not clear how automated this process is. Which reports require operations staff involvement and which do not? There needs to be at least one S-CLS requirement that states the WKBCH shall support access to tool that disseminates reports. And in fact, if this tool is part of the CLS as potentially implied by S-DMS-10556 and S-DMS-00706, then there should be a suite of CLS requirements to support this interface. (RP)	L4s have been written for GTWAY, ADSRV, and DDICT to also distribute these reports. The tool used is an operator tool, not one allocated to the client subsystem. The operator is expected to specify the destination of the reports and request the generation of the report. DSS will add some information to the design documentation to help identify operations staff involvement in the reporting process.
36) IMS-1700: Level-4s only address backlogs of DARs in the SDSRV and backlogs of distribution in the DDIST, but do not address data quality assessment, Daily IMS operations summaries, IMS performance summaries or backlogs of processing requests as stated in this level-3 requirement. Level-4s minimally address DDIST and SDSRV CIs but do not address these issues concerning other CIs such as LIMGR, DIMGR, ADSRV, and GTWAY. (RP)	L4s were written for LIMGR, DIMGR, DDICT, GTWAY, and ADSRV, to allow the operator to generate the Daily IMS operations and performance summaries. Backlogs of DAR processing requests are apparent from lists of outstanding DARs. General visibility of backlogs of processing requests are available through the PLANG CI. PLANG CI L4s could be mapped to this L3 but the original concept of all processing being requested through IMS oriented functionality has changed.
37) IMS-1710: Level-4s are insufficient to support this level-3 as they do not address correlation of science data to calibration, navigation and instrument engineering data. Also, Level-4s limit relationships to core metadata and need extended to non-core too. (RP)	IMS-1710 was mapped to S-DSS-03210 which was changed to include Production History. The production history and its metadata provide the necessary calibration, navigation, and instrument engineering data. The production history metadata is considered to be part of the "core" metadata, so the core metadata search capability will satisfy this Level 3 requirement.

ESDIS Comment	ECS Response
38) IMS-1720: Level-4s do not address relationships between data and data recipients as stated in the Level-3. Level-4s are one-sided in that they address storage to references but they do not describe where the references are "from". In other words it seems the relationships among the information may be incomplete (RP) S-DSS-30350 implies there is a staff interface in DDIST. There are no related S-CLS requirements and as far as I know this isn't being designed as part of CIDM. (RP)	S-DSS-30350, which refers to reporting on distribution activity, was already linked to IMS-1720. DDIST L4s S-DSS-30270, S-DSS-30280, S-DSS-30288, and S-DSS-30290 were added as links to IMS-1720. DSS has an operations interface which provides operations staff with access to each DSS sub-component. This is a separate interface from the client which predominantly interfaces with users.
39) IMS-1730: Level-4 only addresses SDSRV CI requirements but implies human/machine interface requirements too which are not addressed in the level-4s at all. There needs to be a suite of S-CLS and potentially other non-client (e.g. operator, production) subsystem interface requirements to support this. Cross-references that allow for tracing are also not addressed in the level-4s. (RP)	We agree that one or more reporting and/or HMI L4s should have been linked to this L3 RbR and will be in the next requirements baseline. Cross-referencing capability to the source instrument is provided through the product lineage in the product history metadata.
40) IMS-1740: Level-4s do not address cross-referencing at all - e.g. as might be handled in the STMGT CI. Level-4s imply there is an HMI that will support this function but there are no Level-4 requirements concerning the Client subsystem (S-CLS) to support this. Nor is there references to other potential subsystem support for this (e.g. operations). (RP)	We agree that one or more reporting and/or HMI L4s should have been linked to this L3 RbR and will be in the next requirements baseline.
41) IMS-1760: Level-4s concerning MSS associated with this level-3 imply CLS, IOS, DMS, PLS, DPS, INS, DSS and CSS sends event notifications to MSS but there are NO specified level-4, S-CLS, IOS, DMS, PLS, DPS, INS, DSS and CSS requirements specified with this level-3 - or the traces are missing. This requirement only addresses faults in the SDSRV CI, it seems it should also address faults in other CIs such as DDICT, DDIST, ADSRV, LIMGR, DIMGR, and others? (RP)	This is an IMS L3. Therefore, consistent L4s have been written and linked to this IMS L3 to address detected faults across all CIs in DMS, IOS, and DSS. Client is outside this requirement since clients are not managed by MSS.
42) Section 4.2.4.2.15, S-CLS-14210. User comments should be forwarded to the user's home DAAC, not the SMC. (RD)	L4s text has been modified.

ESDIS Comment	ECS Response
43) Section 4.2.4.2.16, S-CLS-11100. User feedback on product data quality should be forwarded directly to the DAAC that distributed that data, not to the SMC. (RD)	L4s text has been modified.
44) Handling of Fault Management, Performance Management, and Accountability Management data is inconsistent from subsystem to subsystem. For example, the ADSRV CI has requirements to collect Fault Management Data and Accountability Management Data and provide these to the MSS; while the LIMGR CI collects and provides Accountability Management Data and Performance Management data; but, not Fault Management Data; while the DIMGR CI not only collects and forwards Accountability and Performance Management data; but, also has a separate requirement to collect the management data used to support fault recovery management (but no requirement to forward this to anywhere). ASF would have assumed that all SDPS subsystems need to collect Fault, Performance and Accountability data and send same to MSS... If this is the intent, the requirements do not support it. (RD)	Consistency across subsystems is the intent although some differences may be appropriate. DSS has added the following requirements to address this issue. DSS-00821, DSS-00822, DSS-00823, DSS-00824, DSS-00825, DSS-00826, DSS-00827, DSS-00828, DSS-00829, DSS-00831, DSS-00832, DSS-00833, DSS-00834, DSS-00835, DSS-00836, DSS-00837, DSS-00838, DSS-00839, DSS-00841, DSS-00842, DSS-00843, DSS-00844, DSS-00845, DSS-00846, DSS-00847, DSS-00848, DSS-00849, DSS-00851, DSS-00852, DSS-00853, DSS-00854, DSS-00855, DSS-00856 The INGST subsystem supports Fault, Performance and Accountability Mgt. functions with the requirements listed below: Fault Mgt.: S-INS-00340, S-INS-00040, S-INS-00209, S-INS-00228, S-INS-00175. S-INS-00175 reads as follows: S-INS-00175: The INGST CI shall report Hard Media Ingest Request status to the MSS event log for the following: a. Unauthorized hard media provider b. Unauthorized operations staff Accountability Mgt.: S-INS-00030, S-INS-00050, S-INS-00150, S-INS-00160, S-INS-00208, S-INS-00227. Performance Mgt.: S-INS-00345 S-INS-00345 reads as follows: S-INS-00345 The INGST CI shall report status on the performance of ingest requests to the MSS for the following: a. file transfer duration; b: file processing duration; and c. data insert duration. DMS and IOS L4s are updated for consistency across CIs and existing ones were clarified with more precise descriptions of what is being collected. All are worded as being passed to MSS to support the integration of this data.

ESDIS Comment	ECS Response
45) Section 4.4.5.2.1, S-DMS-20900 discusses DDICT maintenance of DAR parameters and constraints for EOC and External Instrument Operations Facilities (e.g., Landsat-7). Since it is ASF's understanding that ECS will only support DAR capabilities for ASTER despite the need for DAR capabilities for other missions including Landsat-7, ERS, JERS and RADARSAT, either restrict the scope of this requirement to include only ASTER or extend it to include the full set of spacecraft for which DARs are relevant. (RD)	Agreed. The status of the ASF RADARSAT data in relationship to the contract deliverables has been checked and the scope of the L4 requirement will be restricted to ASTER in the next requirements baseline .
Data Server and Ingest	
1) Section 4.5.3.2.1, Service Request Processing. Requirements S-DSS-00065 and S-DSS-00070 discuss SDSRV interfaces with the Data Processing subsystem. Equivalent requirements discussing SDSRV interfaces with the ASF SAR Processing System as well as the ASF RADARSAT Geophysical Processing System should be added. (RD)	The SDSRV interface requirements to site processing and EOSD-5110 provide coverage for this capability.
2) Section 4.5.3.2.4 Data Server Log Processing, S-DSS-00500. Not only should operations staff be able to sort the data access log by time range, source, and data type; but, they also need to sort the log by combinations of the above and most importantly by age of the request. Operators often need to pull up lists of the oldest active requests in the system. (RD)	The implication of S-DSS-00500 includes sorting on combinations of the referenced parameters. S-DSS-00510 refers to viewing a time frame of the Data Access Log which will support providing lists of the oldest active requests in the system.
3) Section 4.5.3.2.7 Data Server General Processing, S-DSS-00670 through S-DSS-00700 all involve SDSRV requirements to receive data from various parts of the system. Equivalent requirements to receive data from the equivalent components of the ASF system need to be added. (RD)	The SDSRV interface requirements to site processing and EOSD-5110 provide coverage for this capability.
4) S-DSS-00734. The SDSRV CI shall provide the capabilities to store Data Availability Schedules. Does this work for ERS, JERS, RADARSAT, etc.? (RD)	The existing SDSRV requirements and EOSD-5110 provide coverage for this capability.
5) Where are the requirements managing the list of active Service Requests? Operators need to be able to search the list by user, type of request, age of request, request ID and priority. Operators also need to be able to sort the results and to cancel Requests and change their Priority. (RD)	This is an issue raised in the Release B OPS Workshop. It is unclear whether this is a contractual requirement (Release B) or a "We really want this capability" (Release C). This will be addressed during analysis of the Release B workshop comments.

ESDIS Comment	ECS Response
6) Section 4.5.3.2.13, Data Type Services - Insertion, S-DSS-03004. Explain why this requirement does not cover ASF Ancillary Data? (i.e., explain the necessity for ASF putting Ancillary data in the Science Data Plan). (RD)	In order for ASF Ancillary Data to be cataloged, indexed, and stored, in addition to just being received, data modeling and database engineering require specific information concerning ASF Ancillary data for incorporation into the ECS Science Data Plan, ECS Data Model, ECS Technical Baseline and the ECS Core Metadata. After incorporation into these baselines, the appropriate sizing allocations will be added to the appropriate databases and storage servers.
7) Requirements S-DSS-03050 through S-DSS-03100 deal with orbit/attitude data for AM1. The equivalent requirements for ERS, JERS, RADARSAT, etc. orbit data need to be added to this section. These requirements are needed even if ECS-unique API's are used! (RD)	The existing SDSRV requirements and EOSD-5110 provide coverage for this capability.
8) Section 4.5.3.2.15, Data Type Services - Storage, S-DSS-03414. Explain why this requirement does not cover ASF Ancillary Data? (i.e., explain the necessity for ASF putting Ancillary data in the Science Data Plan). (RD)	In order for ASF Ancillary Data to be cataloged, indexed, and stored, in addition to just being received, data modeling and database engineering require specific information concerning ASF Ancillary data for incorporation into the ECS Science Data Plan, ECS Data Model, ECS Technical Baseline and the ECS Core Metadata. After incorporation into these baselines, the appropriate sizing allocations will be added to the appropriate databases and storage servers.
9) Requirements S-DSS-03460 through S-DSS-03470 deal with orbit/attitude data for AM1. The equivalent requirements for ERS, JERS, RADARSAT, etc. orbit data need to be added to this section. (RD)	The existing SDSRV requirements and EOSD-5110 provide coverage for this capability.
10) Section 4.5.3.2.16 Data Type Services - Costing and Resource Utilization. This section deals with SDSRV interfaces to the PLANG for resource utilization information. Will the SDSRV expect to obtain this information from the ASF equivalent subsystems (i.e., SPS and RGPS)? (RD)	The issue of integration of the ECS with JPL provided subsystems at ASF is under review. The current SDSRV baseline interface will expect to obtain this information from ASF equivalent subsystems.
11) Section 4.5.3.2.19 Data Type Services - DARs. It is ASF's understanding that despite the similarity in requirements between ASTER, ASF and Landsat-7 DARs, only ASTER DARs will be available though ECS. Either generalize this section to include all DARs (not just ASTER) or clearly state in the text at the beginning of the section, that all requirements in the section only apply to DARs for ASTER. (RD)	If the document is published in the same format as before, the heading of Section 4.5.3.2.19 will be changed to Data Type Services - Aster DARs. But the document is expected to be published in requirement ID sequential order without service group headings which would supersede this comment.

ESDIS Comment	ECS Response
12) Section 4.5.3.2.20 Data Type Services - Status. Requirements S-DSS-03860 through S-DSS-03866 discuss interfaces to the ECS PRONG and PLANG CI's. Equivalent requirements for interfaces for ASF's equivalent subsystems should be added (i.e., RGPS, SPS and PPS). (RD)	The issue of integration of the ECS with JPL provided subsystems at ASF is under review. No ASF specific requirements will be added pending the results of this review. However , interfaces to ASF's equivalent subsystems are assumed to be semantically equivalent to those of ECS-provided subsystems.
13) S-DSS-10260 discusses API's for adding DAAC-specific Guide documentation. Each DAAC has or is in the process of developing this documentation now. Much of it is already available through the V0 system. No code should be required to make this HTML-formatted documentation available through ECS! (RD)	Disagree; additional code is required for this capability in ECS. ECS has procured COTS software for the underlying guide indexing and storage functions different from the freeware used in V0. In addition, ECS will augment the current document server capability provided by V0 by incorporating it into the ECS Data Type services provided for science data. Making these changes provides the following benefits: - use of COTS technology for document indexing and storage adds robustness and reliability - shared common schema between document and science metadata adds integrity and consistency - interfaces will be through the Distributed Object Framework (DOF) providing benefits to the Data Server clients
14) Section 4.5.11, DSS Subsystem-level Non-functional Requirements. Many of the requirements in this section are based on data in Appendix E section E.1. There is no ASF data in section E.1 of Appendix E. Add ASF to section E.1 of Appendix A or add the equivalent ASF-specific requirements to Section 4.5.11. (RD)	The Requirements in 4.5.11 are performance related requirements based on the data provided in Appendix E which focuses on ECS processor loading. Since ECS provides no processors for ASF, there is no ASF specific section in Appendix E.
15) Section 4.6.3.2.1, Network Ingest Request Service. Each network transfer should be associated with an expected time-to-complete (e.g., nominally 5 minutes) based on the size of the data transferred and the network. Will this sort of information be available to the operator. It would be very valuable for trouble shooting purposes to know that this ingest which was supposed to take 1 minute has been going on for 2 hours now...(RD)	Yes, as we discussed in the Release B operations workshop and in the Release A GUI workshop, the Ingest Status Monitoring/Control display shows status of ongoing requests. The display indicates when an ingest request has exceeded the expected time-to-complete. Three INGST requirements address your comment. They are S-INS-00340 and S-INS-00310, plus the new S-INS-00345 described above.

ESDIS Comment	ECS Response
16) Section 4.6.3.2.5 Interactive Network Ingest Request, S-INS-00210. Will the system check the filename the user entered to see if a file with that name already exists? The user should be given the option of replacing the existing file with the new file or canceling their request. (RD)	No, the system will overwrite the file if a file with the given name already exists. S-INS-00210 allows a user-specified name, which can be different for each Delivery Record File. However, this requirement may have been unclear. No Ingest Request is actually submitted by this requirement; therefore, no "canceling" of a request is necessary. This requirement discusses a simple function--saving the contents of user-entered ingest request information into a file. To help clarify, this requirement S-INS-00210 has been re-written with the following changes: S-INS-00210 The INGST CI shall allow authorized science users to save the contents of an interactively entered Network Ingest Request in a Delivery Record File with a specified file name.
17) Section 4.6.3.2.6 Ingest Status, S-INS-00260. Some indicator of progress is needed. For example, a timer showing elapsed time or perhaps the user will see the data volume ingested continually increasing. The key is to give the user/operator some indication that the activity is still progressing and is not hung. (RD)	As discussed in item 15), ECS will display ongoing status. We are currently exploring means of graphically presenting the status information.
18) Section 4.6.3.2.7, Ingest Request Processing, S-INS-00380. Add Max time allowed for Ingest to the list of thresholds. (RD)	We expect the data provider to indicate the maximum time allowed for their ingest request (via an expiration date/time value). Each data provider has different constraints (e.g., for EDOS max time = 15 minutes + 15 minutes/GB; for Landsat, max time is based on turning around 12 hours of data in 8 hours). ECS detects and reports ingest requests that exceed the expiration date/time via requirement S-INS-00340.
19) S-INS-00393, the list that should be associated with this requirement is missing. (RD)	The list was provided in the IDR version of the Requirements Specification, and is now included in the RTM database.

ESDIS Comment	ECS Response
20) Section 4.6.3.2.11, Ingest Client Interfaces, requirements S-INS-00842, 00846, 00848, 00854 and 00856 involve ingest of data from ASF-unique subsystems. As written, they tend to imply rather odd things (e.g., ingesting data from RADARSAT requires an antenna and receiving ground station). Assuming that all data flowing from ASF subsystems into ECS flow through the Ingest subsystem (which ASF believes is as yet undetermined), ASF would like to suggest collapsing the requirements down to: The INGEST CI shall ingest Data, via a network interface using file transfer protocols, Data from the following ASF-unique subsystems: a. Receiving Ground Station (RGS) b. SAR Processing System (SPS) c. RADARSAT Geophysical Processing System (RGPS) d. Acquisition Planning System (APS) e. Production Planning System (PPS) f. Product Verification System (PVS) g. Flight Agency Interface (FAIF) h. Film Processing Subsystem (FPS) (RD)	The requirements were changed to reflect the actual ASF configuration. We retained the separate requirements for each ASF subsystem to facilitate testing. Note: the Film Processing Subsystem is not currently part of ECS scope. The following requirements were added/revised: S-INS-00841 The INGST CI shall ingest data, provided by RADARSAT Geophysical Processing System (RGPS), into the ASF DAAC via file transfer protocol. S-INS-00843 The INGST CI shall ingest data, provided by the Acquisition Planning System (APS), into the ASF DAAC via file transfer protocol. S-INS-00847 The INGST CI shall ingest data, provided by the Production Planning System (PPS), into the ASF DAAC via file transfer protocol. S-INS-00845 The INGST CI shall ingest data, provided by the Product Verification System (PVS), into the ASF DAAC via file transfer protocol. S-INS-00849 The INGST CI shall ingest data, provided by the Flight Agency Interface (FAIF), into the ASF DAAC via file transfer protocol.
21) S-INS-60775, 60776, 60777, 60779, 60780, 60781. ASF suggests similar changes are made to these requirements as to requirement S-INS-00842, etc. above. (RD)	All of the aforementioned requirements have been deleted because they were considered duplicates to other INGST requirements. Please see action item number 22 below.
22) S-INS-61100, 61120, 61130, 61150, 61160 all size ASF ingest capabilities according to daily rates specified in Tables E-1 and E-2. None of ASF's spacecraft or subsystems are mentioned in either table. Also, ASF suggests once ASF daily rates are included in Appendix E that the requirements be redrafted to match the other suggested ingest section changes. (RD)	These items have been deleted. There is no ICLHW (Ingest HWCI) at ASF, since there is no Level 0 data ingest at ASF.
23) S-INS-61110 refers to RADAR-ALT data at the ASF DAAC. JPL holds these data. (RD)	This requirement has been changed to reflect the comment.

ESDIS Comment	ECS Response
24) The Level 4 requirements traced to DADS1350 and DADS1375 need to be expanded. (a) The system should allow for tape "sniffing". For tapes that have not been accessed over an operator-set period of time, a random sample (not all of the tapes) will be checked. (b) The term "refresh" needs to be defined in a glossary. (BK)	DSS-20920 & DSS-20925 will be mapped to DADS1370#C address this issue. This definition of "refresh" will be added to the glossary - From a tape library standpoint, this is physically recopying any aged or faulty medium to a fresh medium.
25) Requirements traced to DADS0475 still do not include storage of documents. (BK)	Document storage is covered by DSS-10040, DSS-10130
26) Requirements traced to DADS0901 still do not include a mechanism for receiving information on cost or computing cost. (BK)	This requirement appears to discuss management data rather than cost data. Billing and cost statistics are covered in other requirements.
27) Level 4 requirements traced to DADS 1070 require STMGT to accept Archive Status Requests, but do not required it to respond. (BK)	The requirement DSS-03872 provides status in response to an Archive Status Request.
28) Level 4 requirements traced to DADS1180 do not specify that data requests must be acted upon: only accepted. Data store requests are neither acted-upon or even accepted. (BK)	This requirement is focused on interim data products which are not stored with in the DSS archive. This data is kept in second tier working storage until requested by Processing.
29) Requirements traced to DADS1450 do not include automatic screening of archive. (BK)	DSS-20171 has been added for Release B DSS-20920, DSS-20925, DSS-20936, DSS-20960 were linked for Release C
30) Requirement S-DSS-00650 states the SDSRV "Shall expect an acknowledgment", but it does not identify an action if no acknowledgment is received. (BK)	DSS-01760 is the appropriate result from a failed acknowledgment.
31) The requirements traced to DADS0140 do not include receipt of algorithms or metadata not associated with ancillary data. (BK)	DSS-03712 is linked to DADS0140 in the March 1 requirements baseline.
32) The requirements traced to requirement DADS0350 do not include the physical location of a granule as part of its metadata. (BK)	Considering capabilities of the current baselined COTS and the ECS Architecture, the actual physical location is not available (nor is it desired to be exposed) to Data Server clients. Hence the STMGT has the information in the COTS, but the SDSRV doesn't retain the specific location.
33) Level 4 requirements traced to DADS0760 do not address DADS0760. (BK)	Requirement DSS-30515 has been added.

ESDIS Comment	ECS Response
34) Requirement DADS0890 requires DADS to generate inputs to the billing process including media cost, CPU utilization, I/O utilization, personnel costs, shipping/handling/ networking cost, and archival storage cost. SDSRV receives information from CSMS on pricing for disk, CPU, and media utilization, but not I/O utilization, personnel costs, shipping/handling/ networking cost, and archival storage cost. Ingest and DDIST generate cost numbers without the benefit of pricing data. DDSRV does not appear to generate cost numbers. (BK)	The Data Server design satisfies these cost accounting requirements. The ECS operations concept makes no provision for Ingest input to the billing and accounting process. There is no design constraint to providing such input, if requested by NASA. However, billing for Ingest resources would require change to the NASA-directed COFUR policy.
35) INS-00010. This requirement should: a. Define "accept". b. Describe here, or refer to specific document that describes, the format and contents of the Network Ingest Request(NIR), and the NIR's transfer mode (if required for programming). (BK)	The ICDs and the Design Specification define how we implement the word "accept"--namely, by means of interprocess communications (TCP/IP and OODCE) using a Data Availability Notice (DAN). The requirement as stated gave us the flexibility to use some other communication method if deemed optimal. We made the design decision to use TCP/IP, OODCE, and DAN.
36) DSS-03460. This requirement should define "shall interface with" and "to provide storage". DSS-03002 has no added value, and "shall be capable of receiving" should be defined. (Note: there are many such requirements) (BK)	DID 304 requirements state "What" must be done not "How" they will be done. Design (and Implementation) documents such as DID 305 define "How" operations between CI's and Subsystems will occur and what those operations will be. DSS will provide additional implementation information in DID 305.
37) DSS-01550. This requirement should state the notification mechanism. (BK)	DSS will provide additional implementation information in DID 305.
38) DSS-10020. This requirement has no value - it doesn't specify anything definite. It raises more questions than gives answers. (BK)	ECS interprets this requirement as follows: the document data server will accept standing orders for document metadata at the request of the client.
39) DSS-00770. DSS-00780. DSS-01130. DSS-01790. (BK)	[These requirements were provided as illustrative examples for the previous comments.]

ESDIS Comment	ECS Response
40) The following 46 Data Server and Ingest requirements need the TBDs tracked/filled in. S-DSS-03310, S-DSS-03320, S-DSS-03330, S-DSS-03340, S-DSS-03700, S-DSS-03710, S-DSS-04320, S-DSS-04330, S-DSS-60970, S-DSS-61020, S-INS-00401, S-INS-00740, S-INS-00787, S-INS-00842, S-INS-00844, S-INS-00846, S-INS-00848, S-INS-00850, S-INS-00852, S-INS-60210, S-INS-60210, S-INS-60720, S-INS-60721, S-INS-60721, S-INS-60725, S-INS-60726, S-INS-60726, S-INS- 60727, S-INS-60728, S-INS-60730, S-INS-60733, S-INS-60735, S-INS-60740, S-INS-60745, S-INS-60750, S-INS-60751, S-INS-60755, S-INS-60756, S-INS- 60760, S-INS-60775, S-INS-60776, S-INS-60777, S-INS-60778, S-INS-60779, S-INS-60780, S-INS-60781 (BK)	The DSS TBD requirements in this section have been resolved. Most deal with TBD data types. All data types stored by DSS are tracked in the technical baseline. Therefore, it is unnecessary to maintain a TBD place holder in the L4s. TBDs have been filled in for all except two of the INS requirements listed. S-INS-00740 has been deleted; it represents an obsolete operations concept. Specific data types for S-INS-00401 will be defined as new Release B conversions are identified.
41) DADS 0070 "Each DADS shall provide the capability of scanning or digitizing hardcopy input for the purpose of archiving documents" --> The L4's traced to this L3 require INGST CI to accept and authenticate requests for scanning/digitizing, but do not specifically require the capability or devices to do the scanning/digitizing. S-INS-02050 requires status reports on requests, thus implying the capability will be there, but there is no L4 which specifically requires it. (BK)	A new requirement was added to address this issue. The new requirement is listed below: S-INS-60900 The INGST CI shall provide the necessary hardware/software to perform scanning and/or digitizing of hardcopy documents for the purpose of inputting document request from authorized users.
42) DADS 0100 "Each DADS shall receive management directives from the SMC" --> S-DSS-00980 says "The SDSRV CI operations staff shall have the capability to receive from the SMC, maintenance directives" . Should have said "management directives" or else added other types of management directives from the SMC. (BK)	Deleted link DSS-00980 -> DADS0100#B Maintenance changed to management.
43) DADS 0110 "Each DADS shall receive from the IMS, at a minimum, the following: a)Documents, b)Product status dialog, c)Product orders" --> The L4's traced to this requirement address a)Documents, but do not address b) and c). (BK)	Links to S-DSS-00010, S-DSS-00020, S-DSS-00060, and S-DSS-00120 will be added for DADS0110, although this was not accomplished in the March 1 requirements baseline. But it will be added before CDR.

ESDIS Comment	ECS Response
44) For other DADS L3 ingest requirements, which list data types to be ingested (e.g. DADS 0145-from ADC's, 0170-from EPDS's and ODC's, 0180-from users, 0190-from SCF) the corresponding L4s usually neglect to specifically include all of the data types in the L3 list. One or more of the data types (e.g. calibration data, correlative data, documents, algorithms, metadata) are usually missing from the corresponding L4s. The L4s do include requirements to ingest "data" from these sources, and all of the listed data types are "data". But, it would be better to address each L3 data type specifically in the L4's, as well as adding other data types needed but not listed in the L3's. (BK)	The Ingest subsystem is designed to ingest any data specified by means of an ICD or the equivalent. The specific data types and their detailed characteristics are defined in the ICDs/equivalents. In the ingest process, ECS treats all data types generically, based on data type-specific table values derived from the ICDs/equivalents.
45) DADS 0200 "Each DADS shall receive from the IPs at a minimum, the following: a) L0-L4 data products, b) Orbit/attitude data, c) Metadata associated with data sets, d) Ancillary data, e) Calibration data, f) Correlative data, g) Documents, h) Algorithms" --> The L4's which trace to this requirement include 9 L4's with ICLHW CI sizing requirements to support "TBD bytes/second at the electronic data ingest interface with" various IP's. The L4's also include 8 similar, but differently worded requirements, with "TBD's" replaced by Table references in Appendix E. For example, the following pair of L4's: 46) S-INS-60727 "The ICLHW CI at the LaRC DAAC shall be sized to support TBD bytes/second at the electronic data ingest interface with SAGE III" S-INS-61140 "The ICLHW CI at the LaRC DAAC shall be capable of ingesting data from SAGE III at the nominal daily rate specified in Appendix E (Section E.1, Table E-1 and Section E.2, Table E-2) of the Release B 304 document" These appear to be redundant and could cause confusion if the TBD in the first L4 doesn't match the Appendix E tabular values in the second L4. Other such pairs are the following: S-INS-60728 and S-INS-61170 60775 and 61150 60776 and 61160 60777 and 61100 60778 and 61110 (except JPL DAAC changes to ASF DAAC 60779 & 60780 and 61120 60781 and 61130	We agree and have addressed this issue in the March 1 requirements database.

ESDIS Comment	ECS Response
47) DADS 0240 "Each DADS shall accept from the SMC, at a minimum, detailed science plans" --> The only L4 which traces to this L3 is: C-MSS-36610 "The Management Agent Service shall have the capability to send detailed science plans to the DSS" . The capability to send plans to the DSS is not the same as the requirement to accept plans there. (BK)	S-INS-00010 will be linked to DASDS0240, although this was not accomplished for the March 1 requirements baseline.
48) DADS 0281 "Each DADS shall be capable of ingesting and storing data to support the instrument science team(s) in: a) Prelaunch checkout of their instruments, b) Prelaunch science checkout, c) Development of initial calibration information"--> The L4's which trace to this L3 do not address the prelaunch nature of this L3. (BK)	Links will be added to DSS-03492, DSS-03494 in the next requirements baseline. A link was added to S-INS-03200 (which defines Ingest mode management capabilities) to support early Release B interface testing. Ingest otherwise does not require special hardware or software to support pre-launch efforts.
49) Many of the DADS L4 requirements do not specify a state of completion, e.g., what to do when a check/validation fails, or when a data ingest request is received. Examples - INS-00020. This requirement should state what to do when validation is unsuccessful. - DSS-01470. This requirement should state what to do if validation fails. (BK)	DSS has no requirements within DID 304 that cover multiple events, (e.g. validation, failure or success in a single requirement.) Multiple actions are decomposed into multiple requirements. Validation failures are covered by: DSS-00095, DSS-01760, DSS-01770. Ingest checking and reporting are discussed in different L4s. S-INS-00060 (b), (d), and (e) specify reporting check/validation errors to the data provider. S-INS-00340 (b), (d), (e), and (f) specify reporting the check/validation errors to an error (event) log.
50) Requirements for operator interfaces to manage sessions (i.e., to view and manipulate lists of sessions selected/sorted by state, session start time, etc.) are not present in any of the session management sections of the document (e.g., 4.4.3.2.6, etc.). What are the requirements to provide operations staff visibility and control of the sessions in the system and where are they documented? (RD)	S-DMS-00860 on reporting the status of sessions provides operations staff visibility. S-DMS-00960, S-DMS-00970, and S-DMS-00980 provides operations staff the capabilities to suspend, resume, and terminate, respectively, active sessions to provide control.
51) It is not clear from the requirements what happens when a session is suspended. For example, if a product request was placed as a part of a session, does processing of the product request continue while the session is suspended? (RD)	Suspension requests will be responded to at the end of the current processing step. These steps will vary depending on the type of session. So in the example, processing would continue until the end of a step - probably a PGE - but not beyond. Requirements for this will be developed for the next requirements baseline.

ESDIS Comment	ECS Response
52) What limits are placed on users abilities to request termination of service requests? For example, a user should not be able to terminate a media product request once the media has been generated and shipped... In the "on-demand" production case, the user should not be permitted to terminate a request once processing has begun. Where are requirements for this? (RD)	Termination requests will be responded to at the end of the current processing step. These steps will vary depending on the type of session. Requirements for this will be developed for the next requirements baseline.
Planning and Data Processing	

1) Non-science QA and Production History Level 3 requirement PGS-1090, "The PGS shall have the capability to provide the data product quality staff with the algorithms, calibration coefficient tables, input data sets, or other information related to product processing for the purpose of reviewing and analyzing the quality of production" traces to some level 4s that address viewing algorithms, data inputs, and metadata by the operations staff. There is no level 4 requirement for DPS or PLS to produce Production History metadata, however. This is a significant piece of information that operations must use to perform what has been recently called "nonscience QA" and it is missing. There are CLS and DSS requirements (S-CLS-13550, S-DSS-03210, S-DSS-03580, S-DSS-04200, S-DSS-04210, S-DSS-04450) that reference Production History, but there is no requirement to create it anywhere. The level 4s that trace to this requirement also imply a manual process (i.e., the operations person has to view things on a screen). We require level 4s be written to address at least the following (but feel free to be ingenious and think of other and better ways to automate): - have a script that checks each piece of Production History metadata against a file (or database table) of valid values, currently used versions of PGEs, currently created version of output products - have a script that checks that the version of the most current PGE has been staged for execution, given that we're doing processing with the current version. This would prevent reprocessing that would be needed if we ran the wrong version of a PGE against the data and didn't discover it until after processing. (DM)	To begin with, it is correct that a level 4 requirement is needed to support the generation of Production History data. A Level 4 requirement will be prepared to identify that information that will be gathered together and saved by ECS as Production History data. The analysis surrounding the wording of the Level 4s for this are ongoing. These level 4s will be included in the next requirements database. The interpretation for this Level 3 requirement has been that tools are provided to the DAAC QA staff to allow them to view the products and associated input data, metadata, software, etc. to identify gross errors in the products. This is viewed as a screening process and is distinct from the science QA which will take a more analytical, quantitative approach to assessing the data quality. As such, DAAC QA is a manual process where large segments or samples of data are viewed graphically to detect errors. With regard to the end-to-end QC process, the ECS operations concept is that the process for the generation of data products is as automated as possible to preclude the most common sort of errors that are experienced in production systems, human errors. The process of defining, scheduling and executing a production job is as automated as possible. All of this activity is driven by information contained in databases that are under strict configuration control. The software and the databases are tested thoroughly before going into operations to insure correct performance from the initial request to produce a product, to the storage of the product into the archive, to the retrieval and distribution of the product to the end user. With respect to the two specific items identified in the comment, all metadata values will have valid ranges established that are used automatically to insure that only appropriate values are inserted. Only the established, configuration controlled versions of PGEs can be used in production to produce established standard data products. All of this information is captured automatically from the production processing activity and retained in the production history data. Previous versions of PGEs can be used to generate a product if it is determined that it is legitimate to do so, but a requirement will be added which will require operator confirmation for an 'obsolete' PGE to be used.

ESDIS Comment	ECS Response
2) Profile information There needs to be level 4s that specify a more detailed granularity for PGE Profile information. Suggested items are: resource usage for different configurations (so that the PGE could be planned accurately on different platforms, for example), and resource usage that can be based on instrument mode or volume of data coming into the PGE (where applicable). (DM)	S-PLS-0400 (A) states: "The PLANG CI shall maintain Product Generation Executives (PGEs) information that identifies the Science Software, the order of execution, the conditions for execution, the processing environment, and the input / output data types and locations." This generically describes the requirements for execution of the PGE, including resource requirements. Also S-DPS-21000(A) states "The PRONG CI shall initiate execution of a PGE when the following is true: a. When all input data required to execute the PGE is available on local Data Processing subsystem storage resources. b. When the computer hardware resources are available to support execution of a PGE based on the computer hardware resource information associated with the Data Processing Request. c. When the Priority Information associated with the Data Processing Request has been fulfilled. d. When the maximum disk space requirements defined for the PGE are available to support the successful execution of the PGE e. When the maximum memory resources defined for the PGE are available to support the successful execution of the PGE f. When the CPU resources defined for the PGE are available to support the successful execution of the PGE" Both of these imply a good knowledge of the PGE resource requirements. It has been assumed in the Release A design, based upon discussions with ITs, that the PGEs would most likely be designed and coded with one particular machine in mind and that corresponding hardware will be provided at the target site for processing. Porting the algorithm to run on multiple platforms is not assumed to be a likely activity and would most likely result in separate PGEs to run on those systems. Therefore the definition of multiple sets of resource usage parameters for a single PGE is not planned for. In Release B, PLANG & PRONG will support the definition of multiple PGE Profiles to handle different platform types or different versions of the same platform (e.g. two SGI platforms w/ different processors).

ESDIS Comment	ECS Response
2) Profile Information (continued)	At Release A, instrument mode information will not be available to the PLANG to make estimates of resource requirements based on instrument mode. Additionally, for Release A all planning is based upon the receipt of the nominal 24-hour unit of data to be received from SDPF for TRMM and CERES. Instrument mode information will be available to the PLANG for FOS controlled platforms. Predictions of resource utilization will be considered for different modes that the instrument teams inform us about, and will require different PGE profiles and/or different science software. Estimates of resource usage based on data volume are not supported.
3) Data dependency for level 0 data It would be good to give the PGEs that use level 0 data the option of not processing if quality was sufficiently bad. This measure of quality needs to be defined (admittedly, the EDOS/EGS ICD was not available when DID 304 was produced) from the information that is contained in the level 0 PDS and in the quality data we get from SDPF. (DM)	It is possible to condition the processing of data on the state of the quality metadata associated with the level 0 files. In this way, when the data becomes available and PLANG is notified via subscription of the data availability, the quality metadata is examined and processing not planned if the quality values are not sufficient. However, the quality flags provided by SDPF for Release A instruments that are available for PLANG to examine are at the file level (24-hours). This may not be a good measure of the data quality. Similarly, in reviewing the EDOS-EGS ICD, there appears to be no QA information being made available as part of the metadata. However, if such information is made available, PDPS will (at Rel. B) be able to cancel processing of the Level 0 data based on IT supplied criteria. If the question concerns data loss as the result of unrecoverable communications problems, the ITs would most likely want to process the Level 0 data regardless to recover whatever science was available. If the question concerns actual data quality problems resulting from instrument anomalies, again the ITs would most likely want to process this data anyway to try to understand the source of the anomaly.

ESDIS Comment	ECS Response
4) PGS-0490 - the level 4 does not mention climatology as does the level 3 (to which it is the only L4 trace) (DM)	The Level 3 RbR requirement calls for ECS to provide access to certain data types, and the Level 4 requirements specifically identify these as GFE data types. ECS has taken the broader interpretation that the data sets should be located, acquired, brought to the ECS and installed as well as making them accessible to PGEs. However, in the case of climatology databases, no good agreed upon database could be identified to be made available to the ECS community. NASA was informed of this situation with the hope that NASA personnel could identify such a database, but no climatology database was identified. As a result, this particular type of data is not identified in the corresponding Level 4 requirement. Should NASA succeed in identifying a climatology database, this will be incorporated.
5) PGS-0650 - this L3 talks to preexecution stuff ops can do with the algorithm, some of the level 4s are dynamic in nature (they require the algorithm to execute) (DM) PGS-0970 - none of the L4 traces imply "enforce compliance with the adopted standard ECS formats." (DM)	With respect to PGS-0650#A, it is assumed that the Level 4s that relate to dynamic testing are the following: S-DPS-40900, 40910, 40920, 40930, 40940, 41000, 41005, 41010, 41015, 41020, 41030, 41035, 41040, 42340, and 42360. These requirements have been unlinked from this RbR and linked instead to PGS-0920#A which directly relates to dynamic testing. Some of these Level 4s were already linked to this RbR. With respect to PGS-0970#A, the Level 4 requirements identified support access to the SDP Toolkit routines. These routines provide file access in a manner that is consistent with the ECS standards. If the PGEs make use of these routines, the standards will be adhered to. Enforcement is provided procedurally. As a side note, the SDP Toolkit related level 4 requirements, which will also be traced to this RbR, have not been entered in the RTM database yet, having only recently been approved by ESDIS.
6) PGS-1220 - the L4 does not mention climatological db (as does the L3) (DM)	See the discussion above for item 4.

ESDIS Comment	ECS Response
ISS	
1) Section 4.10.3.2.2, Network Service Functions, C-ISS-20110. Please remove the work "archival" from this requirement. ASF has no other archival system than that provided by ECS (all we have is a shelf of data tapes). (RD)	The words "and archival" have been removed from C-ISS-20110.
2) C-ISS-20060, This requirement refers to network I/O sizing for ASF in Appendix A. Appendix A network sizing values are for the most part TBD. Please fill these values in. (RD)	The sizing information will be provided in the May 30 version of the Requirements Spec (DID 304). The sizing information will also be included in the Rel B CDR design documentation.
MSS	
Section 4.11.3.3.3 Fault Management Services, C-MSS-60410. This requirement refers to the ability for site fault management services to receive policies and directives from the EMC. What about the ability to receive site specific policies and directives (or are there really no software rules involved here)> (RD)	Concur with comment regarding site specific policies and directives. Requirement C-MSS-60400 was re-worded to provide this capability at the LSM and SMC.
Untraced Level 3 Requirements	
SDPS	
1) Level-3s SDPS-0016, SDPS-0022, SDPS-0092, SDPS-0093, SDPS-0094, and SDPS-0150 were omitted from the traceability Matrix in table C so these apparently aren't addressed in DID304 at all. (RP)	See response to item 2 below under *Data Server and Data Ingest* for SDPS0016. SDPS0022 was only recently added to the requirements baseline due to a contract modification. L4s will be added to cover it in the next requirements baseline. SDPS0150 is in the March 1 requirements baseline with L4 coverage. SDPS0092, SDPS0093, and SDPS0094 are allocated to Release C.
Data Server and Data Ingest	
1) The following requirement no longer has L4 requirements traced to it: DADS1350 Each DADS shall manage its storage media to eliminate data loss due to long or short term media degradation adhering to applicable guidelines, recommendations, and standards of NARA, NIST, and NASA, or other professional or industry organizations such as ANSI, the Society of Motion Picture and Television Engineers (SMPTE) or the National Association of Broadcasters (NAB). (BK)	DSS-20310 is mapped to DADS1350#C in the current Baseline, as discussed in the ECS Release Plan Rescope Meeting.

ESDIS Comment	ECS Response
2) The following requirement is still untraced. DADS2120 The DADS shall have access to the system wide scheduling information. Such information includes, at a minimum, ESDIS Policies and Procedures regarding instrument and ground event scheduling, other element plans and schedules, element allocations of ground event functions and capabilities, product thread information, and scheduling directives for testing, maintenance, and emergency situations. (BK)	Allocation of system wide scheduling requirements is being handled as part of a cross subsystem effort. Although the final form of these requirements was not set in time for the March 1 requirements baseline, these requirements will be established prior to CDR.
PDPS	
1) There are no L3 to L4 mappings for PGS-1010, 1015, 1020, 1030. I know, SDP Toolkit requirements, but shouldn't these be in DID 304? (DM)	With the SDP Toolkit requirements being published in their own separate document, whether they should be redundantly published in the CSMS/SDPS Requirements Specification (DID 304) is an issue for discussion. Regardless, with the recent ESDIS approval of the SDPTK Requirements Specification, these requirements will be loaded into the RTM database and their coverage of the referenced PGS L3s will be reflected in that database. Approval of this document arrived to late to include these requirements in the March 1 requirements baseline, and therefore will not be included in the next publication of the (DID 304) document.
2) There is no L3 to L4 mapping for PGS-0595. (DM)	PGS-0595 and its RbRs have only recently been added to the requirements database due to a contract modification. L4s to address these RbRs will be added in the next requirements baseline.
3) PGS-1025 - of all the L4 traces, the only one that is remotely a good trace is S-DSS-03712(DM)	The interpretation of this requirement provided by ECS in the past has been that this requirement calls for a controlled software repository where scientists can contribute software tools that they have developed which may be useful to other scientists in the processing or display of science data products. The level 4 requirements presented here represent the underlying capability needed to receive, store and distribute those software products. ECS does not provide any tools of this type.
4) PGS-1120 - there are no DSS level 4s to receive this stuff.(DM)	S-DSS-00670, S-DSS-03250, and S-DSS-03260 are about receiving this stuff. They are not linked to PGS-1120 because it is a "send" L3, not a "receive". "receive" L4s are linked to "receive" L3s.

ESDIS Comment	ECS Response
5) PGS-1130 - both L4 traces are not applicable to the L3(DM)	Agree that both of these traces are invalid. These links have been removed and level 4 requirements have been added and linked to this RbR.
6) PGS-1150 - none of the traces are good traces(DM)	Disagree. The concept behind these mappings in particular and the general matter of the quality checking/handling of production data granules is as follows. The PDPS will support routine production processing using PGEs provided by the ITs. The PGEs may incorporate automated quality checking capabilities. These automated quality checking routines may be used to update QA metadata fields when the granule is inserted into the Data Server. This QA metadata will then be available to all users of the data in the future. Also, the PGE can fail the job if the quality of the data is sufficiently low. In this case, the granules resulting from the failed job can be destaged to temporary storage areas in the data server where they can be retrieved by the ITs for analysis. These products will be removed from the temporary storage area after a period of time. Additionally, DAAC operations personnel may be involved in performing quality checks of data granules after the granules have been inserted into the Data Server. Also, other PGEs may be run following the completion of a previous PGE which perform quality checking on the granules produced and inserted to the data server.
7) PGS-1200 - there's no L4 for report generation (DM)	The level 4 requirements provided here identify the capabilities to gather the metadata needed for product quality reporting. The actual report generation is expected to be performed by the DAAC QA personnel using general-purpose database report generation tools provided by MSS. The reports can be prepared quickly and tailored to answer specific questions for each product.

ESDIS Comment	ECS Response
Incorrectly Traced Requirements	
CIDM	
1) S-DMS-00950 S-DMS-20920 (traced to IMS-0510); S-CLS-12750, S-CLS-12770 and S-CLS-12780 (all traced to IMS0670): S-CLS-12920, 30, 40, 50, and 60 (all traced to IMS0169); S-CLS-01510 (traced to IMS0150); are in the trace table in appendix C but do not exist up front in the requirements statements. (RP)	S-DMS-00950, S-DMS-20920, S-CLS-12750, S-CLS-12770, S-CLS-12780, S-CLS-12920, S-CLS-12930, S-CLS-12940, S-CLS-12950, and S-CLS-12960 are Rel C L4 requirements which should not have appeared in the trace table. S-CLS-01510 "The WKBCH CI interface to access communications networks shall conform to the ECS style guidelines." appears in section 4.2.4.3, but is not in sequential order which is probably why the reviewer did not find it.
2) IMS-1660: In Appendix C, IMS-1660 traces to S-DMS-00950 which doesn't appear in DID 304. (RP)	S-DMS-00950 is a Rel C L4 requirement which should not have appeared in the trace table.
3) Page B41, S-CLS-15990 lists a trace to IMS1200 which no longer exists (e.g. the level-3 has been deleted). (RP)	The deletion of IMS-1200 is part of CCR 505-01-41-064 which is being negotiated as CO#2. ECS intends to tentatively implement this change in the requirements baseline prior to formal agreement on CO#2. But IMS-1200 still exists in the March 1 requirements baseline.
4) Page C21, The trace from IMS-0610 to the level 4s lists S-CLS 10190 twice. Is the second one a typo and if so, what is the real level-4 that should be listed there? (RP)	The trace is not listed twice. Two similarly numbered requirements, CLS-10910 and CLS-10190, are traced to IMS-0610.
Data Server and Ingest	
1) Requirement S-DSS-20470 should be traced to DADS0210. (BK)	Do not agree, this L3 RbR appears to only talk about DADS receiving data. This is an ingest function. This L4 is already linked to DADS0282. But did delete links from DADS0210#B with DSS-03122, 03124, 03492, 03494, 03992, 03994, 04112, 04114, 20450, 20455, 20460, 20462.
2) Requirements S-DSS-20920, S-DSS-20925, S-DSS-20935, S-DSS-20940, S-DSS-20950, and S-DSS-20970 are traced to DADS1370 in Appendix C, but the requirements are not in DID 304. (BK)	These are Release C requirements which will be traced to DADS1370#C when a future Rel C CCR is applied to the requirements baseline. The erroneous tracing in Appendix C to DADS1370#B will be removed. Regardless, Rel C requirements are not published as part of Rel B's Requirements Specification document.
3)DADS 0210--> Two pairs of L4's which trace to this L3 have identical L4's, i.e.: S-DSS-03492 = S-DSS-03992 S-DSS-03494 = S-DSS-03994 (BK)	Agree, these requirements were redundant. Deleted DSS-03992 and DSS-03994 and their associated links in the March 1 requirements baseline.

ESDIS Comment	ECS Response
4) The following Level 4 requirements appear in appendix C as being traced to Level 3 requirements, but do not have text identified in the body of the requirements document. Level 3 Level 4 DADS0130 S-DPS-30810 DADS0140 S-DPS-30810 DADS1310 S-DSS-20630 DADS1310 S-DSS-20640 DADS1370 S-DSS-20920 DADS1370 S-DSS-20925 DADS1370 S-DSS-20935 DADS1370 S-DSS-20940 DADS1370 S-DSS-20950 DADS1370 S-DSS-20970 DADS1375 S-DSS-20330 DADS1375 S-DSS-20340 DADS1375 S-DSS-20960 DADS1475 S-DSS-00890 DADS1475 S-DSS-00895 DADS1475 S-DSS-00910 DADS1475 S-DSS-00915 DADS1475 S-DSS-20635 DADS1475 S-DSS-20640 DADS1790 S-DSS-20630 DADS1790 S-DSS-20635 DADS1790 S-DSS-20640 (BK)	S-DPS-30810 was deleted as a L4 and thus appeared erroneously in appendix C. The following are Rel C L4s which, therefore, do not appear in the text of this Rel B document. They should not have appeared linked to Rel B RbRs in appendix C and will not be in the next publication of the Requirements Specification. S-DSS-00890 S-DSS-00895 S-DSS-00910 S-DSS-00915 S-DSS-20330 S-DSS-20340 S-DSS-20630 S-DSS-20635 S-DSS-20640 S-DSS-20920 S-DSS-20925 S-DSS-20935 S-DSS-20940 S-DSS-20950 S-DSS-20960 S-DSS-20970
5) A given L4 which has or traces to more than one L3. A L4 requirement may not trace to or address more than one L3. (BK) Example: - INS-00228, DSS-03460, and many others. (BK)	ECS does not agree that any single L4 requirement should not trace to multiple L3 parent requirements. F&PRS L3 requirements do not imply or require a design or architecture, per ESDIS direction.
PDPS	
1) PGS-0190 - maps to S-DPS-20830 and 840, but they are for destaging. (DM)	The links between PGS-0190 and S-DPS-20830 and 20840 have been removed. These two Level 4s are correctly traced to PGS-0270#A
2) PGS-0240 - maps to S-DPS-21550 which is a questionable trace. (DM)	Agree. This link has been removed.

ESDIS Comment	ECS Response
3) PGS-0260 - maps to S-PLS-00710, this is not a good trace. (DM)	Disagree. The interpretation of item C of PGS-0260, calibration data handling, is that calibration data may need to be processed prior to use in production processing. This calibration data handling can be scheduled through the planning function as an ordinary PGE would be. This is intended to be shown through the trace to S-PLS-00710. With respect to items A and B, it is assumed that this requirement addresses files local to the Processing and Planning subsystems, and that all other files are handled by Data Server requirements for data availability, etc. The Planning and Processing specific file backup and maintenance are accomplished using standard Unix utilities for these purposes. The scheduling of these backups is an operational procedure. It is possible that this activity could be scheduled using the resource planning (ground event planning) tool available through the operator Desktop.
4) PGS-0285 - this level 3 talks about rejecting or confirming a product order, the L4s S-DPS-20510, 750, 760, 870, 880, 21580, 21590, and 22540 address conditions that can happen after an order is confirmed. (DM)	Agree that most of these requirements are not well-linked. The interpretation has been taken that providing status to the IMS referred to in PGS-0285 is equivalent to providing status information to operations. The group of requirements identified was associated with providing status for other reasons. It appears that a better link is this case would be to PGS-0380#A/B. With the exception of S-DPS-20510 in the list provided, the links to PGS-0285 have been removed and these Level 4s have been linked to PGS-0380#A/B
5) PGS-0300 - maps to S-DPS-21700, 710, 800 and 811, but these are not appropriate to the L3. (DM)	Agree that S-DPS-21700 and S-DPS-21710 should be (and have been) unlinked from this RbR. S-DPS-00800 calls for the capability to permit an operator to activate a plan which is a part of the capability for the operator to "update the current data processing schedule" called for in the RbR. S-DPS-00811 calls for the PLANG CI to incorporate outstanding (i.e., not-yet-completed) processing when a new plan is activated, which is a component of the capability to update the current data processing schedule.
6) PGS-0325 - need to add map to C-MSS-36450 (DM)	Since PGS-0325 talks to providing, or sending, information and C-MSS-36450 talks about receiving information, this link will not be added. Interface linkage of requirements is not being made across requirements levels (L3 sends do not link to L4 receives).

ESDIS Comment	ECS Response
7) PGS-0330 - why not add S-DPS-20480, 21910 and S-PLS-01440? (DM)	PGS-0330 relates to reporting processing system faults ("Processing system faults = errors such as data staging/destaging, PGE execution, queue processing, etc.") to SMC. S-DPS-20480, which relates to taking a standard course of action if a processing resource is not being available, does not fall in this category, such that internal recovery actions might be appropriate. S-DPS-21910 relates to displaying information to the operators. S-PLS-01440 appears to be applicable to this RbR and the link has been created.
8) PGS-0340 - why not S-DPS-20480 and S-PLS-01440? (DM)	PGS-0340 relates to making use of fault isolation tools provided by LSM (i.e., MSS). S-DPS-20480, which relates to taking a standard course of action if a processing resource is not being available, does not fall in this category. S-PLS-01440 appears to be applicable and the link has been created.
9) PGS-0350 - add S-PLS-01440 (DM)	S-PLS-01440 appears to be applicable and the link has been created.
10) PGS-0400 - add S-DPS-41035 (DM)	Agreed, the link has been added.
11) PGS-0410 - add S-DPS-21910, 20, 30, 40 (DM)	The indicated Level 4 requirements have been linked to the RbR
12) PGS-0440 - maps to S-DPS-30810 which I can't find in the text anywhere, maps to S-DPS-30900, 10, 20, 31020, 31030 but these do not apply to the L3 (DM)	The link in the Requirements Specification to S-DPS-30810 was erroneous. Agree on the others. PGS-0440 addresses receiving L0 to L4 data and related information from the data server, whereas the other requirements relate to providing data/information to the, i.e., the Level 4s do not support the RbR. The link were removed in the March 1 requirements baseline.
13) PGS-0450 - maps to S-DPS-30700, 10, 20 but these do not apply to the L3 (DM)	The link in the Requirements Specification to S-DPS-30720 was erroneous. Agree that PGS-0450 relates to receiving ancillary data from the data server, whereas S-DPS-30700 and S-DPS-30710 relate to providing data to the Toolkit. The link to S-DPS-30700 has been removed.
14) PGS-0920 - add S-DPS-40210, 30, 50 (DM)	Agree, the Level 4 requirements requiring support for FORTRAN 77, FORTRAN 90, and Ada have been linked to this RbR.

ESDIS Comment	ECS Response
15) PGS-0925 - maps to S-INS-00406 which is not a good trace. (DM)	Agree, the Link from S-INS-00406 is not appropriate and has been removed. Additionally, the RbR requirements PGS-0925#A and PGS-0925#B have been changed from "functional" to "procedural". These RbRs specify "[validation of] algorithms used for conversions, calibrations and transformations of EOS engineering data" which will be performed by I&T in the same manner as all other software code is tested.
16) PGS-1170 - S-PLS-00830 is not a good trace(DM)	The RbR specifies the capability to flag or identify granules queued for QA that have not been reviewed within some time period. The concept behind the tracing of level 4s to this RbR is that the purpose of the timer for the granules is so that the products may be used as input to some subsequent processing step. The decomposition of the RbR is in two parts (1) the identification that the timer has expired and (2) the release of the job that is waiting for the granule as input.
17) PGS-1230 - S-DPS-20820 is not a good trace (DM)	The trace to S-DPS-20820 will be removed from the next requirements database baseline.
18) PGS-1400 - traces to S-DPS-20010 which does not appear in the text. (DM)	S-DPS-20010 was not in the Requirements Specification text because of a missing release value in the RTM data base. It will appear in the May 30 version of the Requirements Specification document and reads: The PRONG CI shall be developed with configuration-controlled Application Programming Interfaces (APIs) to support the development and integration of DAAC value-added processing.
Other Comments	
General	
1) With the non-sequential numbering of the Level 4s it is extremely difficult to check the requirements trace. (KM)	With the next publication of the Requirements Specification (DID 304) on May 30, ECS will present requirements in sequential order in both RbR to L4 and L4 to RbR formats. Requirements text will be included in both of these formats.

ESDIS Comment	ECS Response
2) It would be very helpful when reviewing the document if many of the expressions used in the requirements were explained. For example, S-CLS-00040 and S-CLS-00050 both refer to the "use of non-standard keys". The ASF User Services folks we had review the client requirements had problems understanding what this meant. As another example, S-CLS-10770 refers to hierarchical searching of documents. What does this mean? (RD)	ECS will attempt to explain phrases such as these in the text of the document or in the glossary, but it is difficult to access the level of familiarity of all reviewers. Only S-CLS-00040 refers to the "use of non-standard keys", the same term used in the parent L3 IMS-0120. ECS interprets this term as keyboard keys which are not supported by practically all keyboards. Hierarchical searching of documents is also a phrase from the parent L3 requirement. The ECS interpretation of hierarchical searching of documents from the L3 takes advantage of the relatively recent HTML format to provide hyperlinking between documents.
3) ASF had relevant members of our operations staff review sections relevant to their area of expertise. They had one general concern and that was while they saw individual requirements for operator interface capabilities in the sections they were reviewing, there didn't seem to be requirements for on-line help, context-sensitive help, operator feedback, hints as to proper command syntax, aids for the operator in resolving problems, etc. in those sections. Some of these kind of requirements are spelled out in the Client subsystem section; but, it was not obvious that they are relevant to operator interfaces developed by individual subsystems. Please either point to the relevant requirements back in the Client subsystem in the discussion section of each subsystem or add relevant requirements wherever operator interface capabilities are discussed. (RD)	Client requirements will not always apply to operator interfaces. But the COTS intensive nature of ECS operations make it difficult to specify common requirements for help and operator assistance.
4) One thing that was very unclear with the requirements, was how resource limits apply to subscriptions. For example, a user has been granted $100 in data credits which amounts to 4 months of a product that is generated once a week. Clearly the user can place a subscription to receive that product when it is generated. As far as ASF can tell there is nothing in the system to force the user to only subscribe to 4 months of data. What happens when that 5th month of data arrives? What happens when processing is accomplished out of order such that month 5 arrives before month 4? What if the user who is now out of data credits really needed month 4 and not 5? (RD)	This isn't a subscription issue, but more a SDSRV issue once the action is given to the SDSRV from the Sub server. Standard SDSRV behavior when client doesn't have resources is to refuse the order as it is generated by the subscription.

ESDIS Comment	ECS Response
5) It appears that many Release A specific requirements have no Release B equivalent where one would have expected to find such. For example, all Section 4.5.3.2.11 Data Server Test Requirements are for Release A. Where are the Release B test requirements? Section 4.2.4.2.2 User Logon. Requirement S-CLS-13380 sends User Authentication Requests to the SMC; while S-CLS-13390 returns User Validation Status from CSMS. Either both requirements should refer to the same location or the corresponding pair of requirements receiving something from the SMC and sending something to CSMS need to be added to this section. (RD)	If the next Requirements Specification is published in the same format as before, the section heading for Section 4.5.3.2.11 will be changed to: ~~Data Server Test~~ TRMM Support Requirements Modified S-CLS-13390 text to address SMC.
6) What capabilities does the operator have to detect aging requests? What tools do they have to fix whatever is wrong with the request to get it going again? (RD)	This is an issue raised in the Release B OPS Workshop. It is unclear whether this is a contractual requirement (Release B) or a "We really want this capability" (Release C). This will be addressed during analysis of the Release B workshop comments.
CIDM	
1) Some requirements are in the wrong sections which makes it difficult to review for completeness (e.g. CLS-15710,15720,15790,15950). (KM)	Although the specified requirements appear to ECS to be in the correct sections, the next publication of the requirements will present them in sequential order, and so will not necessarily be grouped in sections beyond subsystem groupings.
2) S-DMS-00020, S-IOS-00690, S-IOS-00700, S-IOS-00710, and S-IOS-00710 refer to "format" in appendix K but Appendix K is just a glossary and doesn't address format. (RP)	Perhaps "format" is a misleading term here, but the glossary does give a general description of the referenced items.
3) Page 4-56, S-DMS-10590 has extraneous text after the word "MSS". (RP)	The text of this requirement has been corrected.
4) Section 4.2.4.2.6 Earth Science Search Tool. Requirements S-CLS-10120, 10140, and 10150 all refer to string functions that can be performed on "non-geographic Metadata". Since S-CLS-10170 refers to "numerical non-geographic Metadata" shouldn't 10120, 10140 and 10150 refer to "non-numerical non-geographic Metadata"? (RD)	The following L4s were edited to say "alpha-numeric non-geographic": S-CLS-10100, 10110, 10120, 10140, 10150, 10160
5) Section 4.2.4.2.6 Earth Science Search Tool. Requirements S-CLS-10120, 10140, and 10150 all refer to string functions that can be performed on "non-geographic Metadata". Since S-CLS-10170 refers to "numerical non-geographic Metadata" shouldn't 10120, 10140 and 10150 refer to "non-numerical non-geographic Metadata"? (RD)	[This appears to be the same comment as previous comment number 4)]

ESDIS Comment	ECS Response
6) Section 4.2.4.2.8 Product Request Tool. S-CLS-10250 provides the user estimates for product delivery. This is a good requirement; but, ASF is curious as to how ECS expects to fulfill this function for on-demand products such as ASF has. (RD)	The current ongoing DPR prototyping effort is evaluating this aspect .
7) Section 4.3.3.1, it is not clear how the directory service information relates to the GCMD. It appears that the ECS advertising service is in direct competition for the GCMD directory service, rather than collaborating with the GCMD. (RD)	The GCMD and advertising service overlap of information is being addressed with ESDIS' Ken McDonald, both from a Release A perspective and Release B perspective. Upon agreement with ESDIS, the L4 requirements will be modified as necessary.
Data Server and Ingest	
1) How will Data Request completion time estimates be made for ASF on-demand data? (RD)	The current ongoing DPR prototyping effort is evaluating this aspect .
2) Some DADS requirements contain phrasing which can be misinterpreted, and extraneous statements which are inconsistent with the requirement purpose. Examples: - INS-00010 and INS-00070. The second sentence in both is extraneous and misleading. (BK) - DSS-03002. DSS-04035 ("shall supply the data products..."). (BK) - DSS-04400: The STMGT CI shall have the ability to store references to calibration data as Metadata for science data. --> This is a confusing statement. It implies that references to calibration data are not necessarily part of Metadata (BK)	Disagree. For the INGST requirements called out we actually feel the second sentence clarifies the definition in the main body of the requirement. We were attempting to note that multiple data granules per request were allowable. A number of our data providers are proposing to use that capability. While DSS understand the concern, we do not feel changing the L4 requirements will effectively resolve these issues. DSS will provide additional implementation information in DID 305.
3) DSS-20080 The STMGT CI shall maintain an Archive Activity Log of all Service Requests received. The log of Service Requests shall be in chronological order and shall include a Request Identifier, the operation requested, completion status of request and a date/time stamp. --> This should say "status of request" rather than "completion status of request" The description of Archive Activity Log is incomplete. (BK)	While DSS understands the concern, we do not feel changing the L4 requirements will effectively resolve these issues. DSS will provide additional implementation information in DID 305.
4) DSS-04380 The STMGT CI shall store the following Metadata: granule id, date and time of storage, physical storage location, data check status and data format type. --> Data check: not defined in the glossary. (BK)	The following definition of "Data Check Status" will be added to the glossary. Data Check Status - a software calculated checksum value for a data file.

ESDIS Comment	ECS Response
5) DSS-20100 The STMGT CI shall provide operations staff personnel the capability to manually access archive media resident in storage devices. --> As in DSS-20100, this should this say "removable?" (BK)	All archive media from a DSS perspective will be removable. It is understood that manual access may be required to correct hardware faults such as load problems, power problems, etc. But disagree that the requirement needs to specify "removable".
6) DSS-20220 If an uncorrectable error occurs during archive, the STMGT CI shall notify the operations staff, select a different piece of Media and complete the archive operation. Note: Contents of original media shall be recreated on new media and the original removed from system. --> This is confusing. Suppose the error occurs the first time that a piece of media is being written. This requirement implies that a copy of the defective media, with the defects faithfully duplicated, will be created on a new piece of media. (BK)	The first time that a piece of media is written, there are no contents on the original media. Therefore, it is not necessary to recreate data on the new media in order to remove the original media.
7) DSS-20230 The STMGT CI shall notify operations staff to discard source archive media after its contents have been re-created on the new media. --> Source archive media is not defined in the glossary. (BK)	The following definition of Source Archive Media will be added to the glossary: Source Archive Media - Archive media that is being used in archive operations (i.e. it has archive data written on it.)
8) DSS-20260 For each piece of archive media, the STMGT CI shall provide the capability to display the length of time to store data on the media before deletion. (BK)	This length of time is a timer value that is resetable by operations personnel. It represents the residency time remain for the associated archive data in the archive.
9) S-DSS-20270 The STMGT CI shall provide the capability to change the length of time to store data on archive media before deletion of the data. --> The term: "length of time to store data on media" is not defined (BK)	The following definition for "length of time to store data on media" will be added to the glossary: Length of time to store data on media - an operation personnel selectable timer value that represents the residency time remain for the associated archive data in the archive.
10) DSS-20290 The STMGT CI shall provide the capability to indirectly notify users when Data Products will be deleted via a bulletin board type mechanism. --> Poor english. Sounds as though the deletion will be done by a bulletin board type mechanism.(BK)	DSS-20290 will be revised to state the following: The STMGT CI shall provide the capability to indirectly notify users, via a bulletin board type mechanism, when Data Products will be deleted.
11) DSS-20310 The STMGT CI shall provide a mechanism to monitor archive media degradation. --> "Degradation" is not defined in the glossary.(BK)	The following definition for degradation will be added to the glossary. Degradation - The routine loss of data continuity on a physical medium due to a combination of age and usage.

ESDIS Comment	ECS Response
12) DSS-20330 The STMGT CI shall provide the capability to automatically refresh archive media, to prevent data loss due to media degradation, periodically as specified by operations staff. --> "Refresh" is not defined. (BK)	The following definition for refresh will be added to the glossary. Refresh - The physical act of recopying degraded media to another media volume.
13) DSS-20170 The STMGT CI shall automatically request operations staff to load a new archive media to store data if no media exists with sufficient space for the new data. --> The FSMS, or even the OS, should handle this, not the STMGT CI (BK)	In the context of FSMS systems, each volume group (volumes containing a specific product, in ECS terms) will have a "scratch pool" of archive media (formatted but empty) associated with it. New volumes are taken from the scratch pool as needed. It is up to operations personnel to monitor the status of the "scratch pool" and add volumes when appropriate. If the operator fails to add volumes, the FSMS system notifies them of this need. If this alarm action did not occur, data would eventually be lost. From an ECS perspective, this notification is passed from the FSMS COTS to STMGT. From STMGT it goes to the appropriate log and operator console.
14) DSS-20390 The STMGT CI shall provide operations staff a mechanism for recovery of data as a result of failed archive media. Note: Failed archive media are media which can not be read. --> This is extremely vague. (BK)	Agree that this requirement is vague and should be replaced with one or more specific requirements that specify how we plan to support the recovery of data from failed media and devices. The specific tools and methods are likely to be device-specific and may not be known until the Release B hardware is procured. These requirements will be included in the next requirements baseline.
15) DSS-20400 The STMGT CI shall provide operations staff a mechanism for recovery of data as a result of failed archive storage devices. --> This is extremely vague. Just say: "remount the tape on a working device" rather than "a mechanism for recovery of data" (BK)	A mount failure is only one of a myriad of scenarios involving data recovery in failed archive storage devices. This requirement addresses multiple failures (e.g. tape thread failure, power loss, tape breaking, etc.)
16) Section 4.6.3.2.8 Ingest Data Preprocessing, S-INS-00403. This is a Release A requirement. ASF believes there will be the equivalent requirements for Release B (i.e., the ECS team has not yet analyzed the incoming metadata in enough detail to know one way or the other yet). What is the plan to update this requirement as the detailed data formats of, for example ASF Level 1 SAR imagery, become known? (RD)	The ASF ICD has not been formally written or approved. When the document is written and approved, we will update our requirements to reflect any changes in our documentation.

ESDIS Comment	ECS Response
17) S-INS-00408, Does this requirement apply to Level 0 data which is not stored in a SDSRV or DDSRV? If not, does this imply there can be no advertisements for Level 0 data? (RD)	All data is stored the same way in the SDSRV and/or the DDSRV. The Ingest subsystem has no specific software requirements related to storage. Instead, the Ingest subsystem reuses Data Server subsystem storage software.
18) Section 4.6.3.2.10 Ingest History Log Processing, S-INS-00490. The information list for this requirement is missing. (RD)	The list was missing due to a data entry problem which has since been corrected.
19) Section 4.6.4, Ingest Client HWCI, requirements S-INS-60110, 60150, 60160, 60170, 60190 and 60210 all show up twice in the document. Please eliminate this redundancy. (RD)	This is a defect in the document that has been rectified in March 1 requirements database.
Planning and Data Processing	
1) p. 4-67 - for repair/refined attitude data, the plan is to receive algorithms from the FDF, integrate them into preprocessing software (or the SDP Toolkit) and perform repairs of small gaps within ECS. FDF is not providing a separate attitude product for TRMM or AM-1.	The "plan" is still being negotiated to determine ECS's responsibilities. A CCR affecting L3 requirements will be required from ESDIS to implement this "plan".
2) p. 4-215, S-PLS-0830, missing some words at end after ":"	The requirement as it currently reads in RTM is: The PLANG CI shall send Data Processing Requests (specified in an Active Plan) to a processing resource that can perform the processing, if the following applies: a. All required input data (including metadata) is available b. Its input data has passed quality assurance (if applicable)
MSS	
1) Section 4.11.6, Management Hardware, requirements C-MSS-06800 through C-MSS-06890 all refer to "The UAF" this and that. The correct expression should be "The ASF" this and that. (RD)	All references to UAF have been changed to ASF.
Appendices	
1) Appendix D, ASF DAAC-unique Interfaces: This section states that issues concerning the scope of the ASF-unique functionality within the ECS baseline are planned to be resolved prior to IDR. They weren't. This should be recognized in the document. Hopefully they will be resolved by CDR. (RD)	The issue of integration of the ECS with JPL provided subsystems at ASF is under review. It is unlikely that they will be resolved by CDR.

ESDIS Comment	ECS Response
2) Appendix D, Section D.2, pg. D-14, request terminology. ASF disagrees with the definition of "data acquisition request". In particular, the second to the last sentence is incorrect. It is not necessary to wait until after data is collected to issue a product request. A product request may be issued at any time, even before acquisition is requested in which case the acquisition request is a result of the product request. (RD)	Prototyping activities (mainly DPR) should provide a better understanding and agreement with the customer with regard to the underlying assumptions on this issue.
3) Appendix E, Section E.4. While ASF has discussed this with the Tom Dopplick with the data migration team, ASF should note that all ASF migration data needs to be migrated by the time ECS Release B goes truly operational. (RD)	This appendix will be updated to reflect the agreed upon activities of the data migration team.
Set of Questions from Beth Pumphrey:	
As part of the routine ECS/ESDIS coordination, please work directly with Beth Pumphrey and informally answer these questions.	The following responses were provided to Beth Pumphrey.
pg. 3-2 next to last bullet I didn't hear any discussion regarding support for periods of unstaffed DAAC operation	As near as can be determined, there is no added functionality in Release B which supports this capability. While this capability will in fact be present in Release A, there are no plans to operate that way in the Release A timeframe. This bullet will be removed from the next version of DID-304.
3.2.4 there are no inter DAAC interfaces listed	Generic inter DAAC interfaces are shown in table 3.2-3. Section 3.2.4 discusses specific inter DAAC interfaces which are primarily from ECS to V0 DAACs and SMC. However, the MODIS Level 2 interfaces for ECS between GSFC and EDC and NSIDC are shown in this diagram (3.2-4)
S-DPS-20150 and S-DPS-20160 what is the distinction between accounting and accountability management?	Accountability includes security, data and user audit trails and resource configuration. Cost accounting includes reporting of usage data on CPU, IO, and Disk usage .
S-DPS-20240 what kind of scheduling management data?	PRONG is required to pass MSS resource fault, performance and utilization data. The site resource planner uses this data to schedule resources.
S-DPS-20470 is data destaging done predictively?	No, there is no way to start destaging data until a PGE is finished executing. However, destaged data will not be deleted from the production disks if it will be required for other PGEs.
S-DPS-20510 am I correct to assume that source of DPRs is always Planning?	Yes. DPRs are created from data in the PDPS database, which is entered via the Production Planning Workbench.

ESDIS Comment	ECS Response
S-DPS-20694 and S-DPS-20730 and S-DPS-22480 is the difference between A and B that B is done automatically? Is staging stopped if the data will be used by another PGE?	For B, data staging is automatically halted after PRONG receives a cancel DPR request, even if another PGE will use the data, so it will have to be restaged.
S-DPS-21124 and S-DPS-21126 what kind of advertisements? for what?	The QA monitor receives advertisements for data products so that subscriptions can be entered against those products which need to be QA'd.
S-DPS-21710 under what circumstances do you foresee this being done?	No cases have been identified, however, that does not mean that this capability will never be needed or desired by operations personnel in circumstances that are currently unforeseen.
S-DPS-22020 and S-DPS-22030 what manual QA is being referenced here?	Science QA, viewing science products.
S-DPS-22530 it would be rare to cancel a DPR after processing was completed and the data was being destaged but if you did cancel a DPR, why would you want to stop destaging?	To prevent archiving potentially invalid data. Presumably the DPR was canceled for a reason.
S-DPS-22611 is there a requirement to store the processing state at the time processing is suspended?	S-DPS-22560: The PRONG CI shall update the Processing State to suspend when the Operation Command specifies suspension.
section 4.7.3.2.9 data preprocessing services there are requirements to process and assess quality of orbit and attitude data and to note in the metadata. Will we always use the data regardless of this assessment or are other options available? are there requirements for those other options?	PRONG will set the QA of orbit attitude to missing or erroneous. It's up to the PGE developers to check the metadata QA and determine how or if to use bad orbit and attitude data.
S-DPS-20030 does this imply lights out mode?	While not necessarily implied by the requirement, that capability will exist.
4.7.5.2.2 title should be science software documentation viewing services	This would be a better heading for this section.
4.7.5.2.11 will there be some automatic management level reports available in the A or B timeframe? why is 4.7.5.2.17 not included here?	a. Referring to PDPS in general, yes there will be automatic management level reports e.g. requirement S-DPS-20240 & others, via the MSS subsystem. b. Historical - 4.7.5.2.17 refers from an operators point of view, 4.7.5.2.11 are for the system. The requirements from 4.7.5.2.17 meet an overall EOSD level 3 requirement, the 4.7.5.2.11 meet a PDPS specific level 3. Agreed, they appear to overlap.
4.7.5.2.13 I'm surprised to see product metadata display capabilities in the AITTL CI	This is for HDF/EOS-HDF data, to validate outputs (some of which is metadata) from PGEs undergoing SSI&T. It was delivered in Ir1.

ESDIS Comment	ECS Response
4.7.5.2.14 I would expect several of these capabilities to be handled by the code checkers and not have to be done manually by the ops staff	Yes. At Ir1, the SSI&T manager includes facilities for several of these, e.g. via tools like the code checker and data visualization tools. See Ir1 delivery.
S-DPS-42630 how related to mode management which is a B function?	This is part of mode management for PDPS.
S-DPS-42720 I assume you mean teleconference via computer?	Could be via telephone - if they choose to utilize that method.
4.7.5.3 I'm not sure I understand the point of including these non-functional requirements since they are more like ops procedures	Calling out these activities as non-functional (i.e. not *software* functions) shows which components will not be implemented with software, but must exist anyway.
S-PLS_00830 its input data has passed qa the following applies: nothing follows I'd be interested in more info on the input data passing qa also	This was a problem with RTM. The requirement as it currently reads in RTM is: The PLANG CI shall send Data Processing Requests (specified in an Active Plan) to a processing resource that can perform the processing, if the following applies: a. All required input data (including metadata) is available b. Its input data has passed quality assurance (if applicable) The question of how Planning will use quality, will be explored further in the Production Rules Workshop telecon on 2/5. In general, the activation criteria for a PGE may include the fact that one of the inputs has passed QA.
4.8.3.3 same comment as before	See above response for 4.7.5.3
The following 8 comments from Tonjua Hines were scanned into this file	
1. On-Demand Product Generation is not defined in the Glossary of this DID 304 document or the ECS Glossary 194-00285TPW. Page 3-2 of DID 304 references 'on-demand product generation' as a REL-B capability but the definition is not until Page 4-213.	The definition of On-Demand Product Generation will be added to the glossary.
2. Appendix D, page D-1, 9th line down. "Sage III and...,despite XXXXXX the fact there is not a specific ICD..." Delete or clarify the words marked by XXXXXX.	The identified awkward wording will be clarified.

ESDIS Comment	ECS Response
3.The following requirements need the TBDs/TBRs addressed. S-CLS-10300 , S-INS-00401 , S-DPS 60440 , S-CLS-15680 , S-INS-00740 , S-DPS-60460 , S-INS-00787 , S-DPS-60470 , S-IOS-00870 , S-INS-00842, S-DPS-61040 , S-INS-00844 , S-DPS-80011, S-DMS-00210 , S-INS-00846, S-DMS-10610 , S-INS-00848, S-PLS-60420, S-INS-00850, S-DSS-03310 , S-INS-00852, S-DSS-03320, S-INS-00854, S-DSS-03330 S-INS-60210 *requir. appears twice on pg 4-157; one can be removed* S-DSS-03340 ** S-DSS-03700 S-INS-60720 S-DSS-03710 S-INS-60721 S-DSS-04320 S-INS-60721 **different text but same requir.number as previous requirement *** S-DSS-04330 S-DSS-60970 S-INS-60725 to S-INS-60781 S-DSS-61020 Table 4.10-1. LaRC DAAC LAN Network Provider Interface is TBD to external end systems, LO ACRIM & SAGE III.	INS L4s do not have any TBD/TBRs in March 1 requirements baseline. CLS corrected these TBDs. DPS replaced all but one TBD - S-DPS-61040 - which will be replaced in the next requirements baseline. The DSS TBD requirements in this section have been resolved. Most deal with TBD data types. All data types stored by DSS are tracked in the technical baseline. Therefore, it is unnecessary to maintain a TBD place holder in the L4s.
4. Requirement S-INS-60721 appears twice with different text, implying a different requirement. Please clarify.	Both versions of S-INS-60721 have been deleted. They were covered by S-INS-60000, S-INS-60010, S-INS-60020, and S-INS-60025.
5. Page 4-19, S-CLS-10960 "one-time distribution of ECS data" is not defined anywhere for context. What amount of data? All the data in the data server or a particular portion, by whom, etc. May want to add this definition to the Glossary (194-OO285TPW).	S-CLS-10960 text has been modified appropriately.
6. pg 4-166, Section 4.7.2, "...quality assurance processing of generated Data Products,.." I assume this applies to Quality of Conformance (QC) (the extent to which the product of the system conforms to design criteria or requirements). This is a non-science QA function performed by the DAAC at what intervals? Is this processing performed on all data products or only standard data products?	Actually the "quality assurance processing" being referred to here is in-line science QA. The frequency of this QA and the products to which it is applied will be determined by the ITs.

ESDIS Comment	ECS Response
7. pg. 4-167, The Preprocessing CSCI L3 requirements are not all resolved due to outstanding issues with FDF with regard to repair/refine of attitude data Recommendation: Add L4 requirements to fill in gaps in attitude where possible. Reference requirement PGS-0455	Negotiations are ongoing to determine ECS's responsibilities in this matter.
8. Spelling errors encountered: pg. 4-43, Section 4.4.2, last line, "from any...SDPS subsystem. These request...	Spelling of "Theses" will be changed to "These".
DSNO COMMENTS ON RELEASE B CSMS/SDPS REQUIREMENTS SPECIFICATION (304-CD-005-001)	
[DID 304/DV1] Lead: Hal Folts/Debbie Blake	
1. GENERAL:	
COMMENTS:	
1. There are lot of discrepancies in the wording of requirements. The same requirements are worded differently in Section 4 and Appendices.	These discrepancies will be corrected in the May 30 version of the Requirements Specification document..

ESDIS Comment	ECS Response
2. Ecom and ESN wide area networks are still being mentioned in the CSMS requirements. Few Examples are given below: **1) Release B ISS Requirement No. C-ISS-11170:** **Section 4.10.3.2.2, ISS Network Service Requirements (Page 4-269):** The ISS shall provide for connectivity between the EOC and ***EBnet***. **Appendix G, Table G-1, New Rel B Requirements (Page G-16):** The ISS shall provide for connectivity between the EOC and ***Ecom for EOS AM-1 interface testing.*** **2) Release B ISS Requirement No. C-ISS-11180:** **Section 4.10.3.2.2, ISS Network Service Requirements (Page 4-269):** The ISS shall provide for connectivity between the EOC and ***NSI for*** EOC/IST communications. **Appendix G, Table G-1, New Rel B Requirements (Page G-16):** The ISS shall provide for connectivity between the EOC and ***ESN Wide Area Network for AM-1 interface testing of*** EOC/IST communications. **3) Release B ISS Requirement No. C-ISS-11195:** **Section 4.10.3.2.2, ISS Network Service Requirements (Page 4-269):** The ISS shall provide for connectivity with ***EBnet*** at the following ECS sites: a. GSFC DAAC b. GSFC EOC ***c. GSFC SMC*** d. LaRC DAAC e. MSF DAAC ***f. JPL DAAC g. ASF DAAC h. NSIDC DAAC i. EDC DAAC*** **Appendix G, Table G-1, New Rel B Requirements (Page G-16):** The ISS shall provide for connectivity with ***Ecom*** at the following ECS sites: a. GSFC DAAC b. GSFC EOC d. LaRC DAAC e. MSF DAAC	References to Ecom, NOLAN, and ESN WAN have been changed to EBnet.

ESDIS Comment	ECS Response
4) Release B ISS Requirement No. C-ISS-11250: **Section 4.10.3.2.1, ISS Network Service Requirements (Page 4-267):** The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services at the MSFC DAAC. **Appendix G, Table G-1, New Rel B Requirements (Page G-17):** The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services ***between SDPS components*** at the MSFC DAAC. The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services ***between CSMS components*** at the MSFC DAAC. The ISS shall provide LAN connectivity and OSI Layer 1 through 4 (i.e., from the physical to the transport layer) services ***between CSMS and SDPS components*** at the MSFC DAAC. **RECOMMENDATIONS:** Review each Release B CSMS requirement and make sure that there are no such discrepancies.	
2. GENERAL:	
COMMENTS: The interface data flow requirements between the CSMS (SMC) and external EOSDIS elements and networks do not match with the data flows described in the ECS ICDs. Here is the example: **Appendix D, Table D-1, Nodes 355, MSS-NSI I/F (Page D-13):** According to the ECS-NSI IRD, following network management information is received by SMC/MSS from NSI Network Operations Center (NOC): Fault Notifications, Fault Resolution, Security Breach Notifications, and Characterization of User Data. In Table D-1, the data flow from MSS to NSI NOC has been specified as "Notification of security breaches" only. **RECOMMENDATIONS:** Review the CSMS related data flows and make sure that they match with the data contents described in the ECS IRDs .	The data flows in the Requirements Specification and ECS ICDs will be made consistent.

ESDIS Comment	ECS Response
3. CSS Requirement No. C-CSS-21105: **COMMENTS: Security Requirement is not being met**. It does not appear that the CSS applications are supporting this requirement. **RECOMMENDATIONS:** Specify where this feature is implemented in the design and where it's implementation is detailed in the design .	The internal authentication API always logs success/failure of an authentication to central management through an agent. The logging of this information is embedded in the authentication API code. At present Release A plans to provide a wrapper on the DCE login API which will inform management services about the status of an authentication attempt. Since these security features are implemented through script files, the information is not described in the design document.
4. Section 4.9.3.4: **COMMENTS: Discrepancy with other Release and Development Plan:** This section is a place holder for the requirement of the Common Facilities Services of the DCCI CI. There are no requirements mapped to this section, however there are 9,000 SLOC dedicated to the development of Common Facilities which are identified in the Release B CSMS Release and Development Plan [307-CD-005-001]. **RECOMMENDATIONS:** Clarify this apparent discrepancy. .	There are several new capabilities as well as enhancements provided by Release B in the Common Facilities Configurable Software Component (CSC). The latest lines of code estimate for the new capabilities and enhancements are as follows: HiPPI Interface 1000 SLOC Distributed File Service 1000 SLOC The new Release B requirements for the common facilities are as follows: C-CSS-61070 C-CSS-61397 C-CSS-01270 C-CSS-60330 C-CSS-60340 C-CSS-60350 C-CSS-62314 C-CSS-62317 C-CSS-64000 The HiPPI interface is being prototyped; therefore, the HiPPI interface related requirements have not been explicitly written.

ESDIS Comment	ECS Response
5. Section 4, Page 4-223: **COMMENTS: Text is misleading or incorrect:** The text in this section implies that only OSF DCE was used in IR 1 and Rel A and the use of OODCE was not employed until Rel B. This statement is not consistent with the presentation and descriptions of the IR 1 and Rel A development effort. **RECOMMENDATIONS:** Correct the wording in this section to accurately reflect the use of OODCE in the IR 1 and Rel A development.	The wording in this section will be corrected. **Old text:** ECS adopted a phased approach to provide the full capabilities as required. As planned, OSF DCE was selected as a CSS baseline COTS product for Release Ir1 and A. HP OODCE is recommended for prototyping and implementation in the Release B time frame. A DCE - to - CORBA migration would provide the complete solution in Release C. **New text:** ECS adopted a phased approach to provide the full capabilities as required. As planned, OSF DCE along with HP OODCE was selected as a CSS baseline COTS product for Release Ir1, A and B. A DCE - to - CORBA migration would provide the complete solution in Release C.
6. Section 4.9.3.1: **COMMENTS: Description of Message Passing is incomplete:** The description of the message passing service does not include synchronous message passing. **RECOMMENDATIONS:** Update the description to include synchronous message passing as well.	Since the synchronous message passing is provided by DCE, it was not mentioned as a new feature here. However. the description will be updated to include the synchronous message passing in response to your comment. **Old text:** Message Passing Service. It provides asynchronous and deferred synchronous message passing between client and server applications running on different platforms. **New text:** Message Passing Service provides synchronous, asynchronous and deferred synchronous message passing between client and server applications running on different platforms.
7. Section 4.10.3.2.2, ISS Requirement No. C-ISS-11020 (Page 4-270): **COMMENTS:** " The ISS shall interface with NSI or an alternate Internet provider at GSFC, MSFC, ..." Is it true that ISS at ECS DAAC site may interface directly with an alternate Internet provider? According to our understanding, the ECS DAAC may interface with an Internet provider through NSI only. The ECS will interface directly with NSI only for external users connectivity. **RECOMMENDATIONS:** Clarify.	For Rel A, Rel B and beyond, our ICDs state that our default connections are via NSI, so the phrase "or an alternate Internet provider" has been deleted.

2.3 IV&V Comments

To: Debbie Blake

cc: Darryl Lakins, Daphne Rodriguez, Ted Ackerson

From: EOSDIS IV&V Team

Subject: Review of the Release B SDPS/CSMS Requirements Specification, October 1995 (304-CD-005-00 1)

1. Summary

This TAM presents the results of the review of SDPS/CSMS Requirements Specification, October 1995 (304-CD-005-001). Scope of this review is limited to the traceability of the requirements and consistency within DID 304 and with the RTM database of 10/6/95[l]. The results are summarized below:

- The Release B enhancement to support SAGE III, ALT RADAR and ACRIMSAT, indicated in DID 304 is not in the Release Plan Content Description May, 1995, which is the applicable document referred to in DID 304. This should be reconciled.

- Some of the obsolete and deleted L4 requirements listed in Appendices H and I are still traced to Release B L3 RbRs in Appendix B and Appendix C of DID 304. The Appendices need to be reviewed and reconciled.

- The review identified 74 inconsistencies like missing traces and duplicate requirement identification numbers in the traceability matrices in the DID 304 and the Release B RTM baseline of 10/6/95. The RTM and the DID 304 are not identical. However, HITC indicated that the RTM will be updated subsequent to the approval of pending CCRs.

Both RTM and the DID 304 should be updated to correct the traceability and other issues identified in this TAM.

2. Context

IV&V conducted a review of the Release B SDPS/CSMS Requirements specification for the ECS project. The review is aimed at checking the consistency of the Release B requirements with the Release B RTM base line (October 6, 1995). Special attention was given to the traceability of the Release B requirements specifications (Level 4 Requirements). The following document sources were used in the analysis;

1. Release B SDPS/CSMS Requirements Specification for the ECS Project, 304-CD-005-001,

2. RTM IDR Baseline October 6, 1995.

3. Release Plan Content Description for the ECS project, May 1995, 222-TP-003-006

3. Discussion

1. The Release B enhancement to support SAGE III, ALT RADAR and ACRIMSAT, indicated in DID 304 is not supported by the Release Plan Content Description May, 1995, which is referenced in DID 304 as an applicable document. Both documents state that the functionalities are according to the ECS SOW, but the documents are not in full agreement.

2. The DID 304 document is incomplete. According to the Requirements Generation Methodology defined in DID 304, the requirements specifications are based on the 09/06/95 RTM and a number of changes /additions and deletions have been made. Only some of the CCRs are applied to the document and the Release B RTM. A number of CCRs (which are pending approval) to change some requirements in response to NASA comments on the PDR issue of this document as well as changes to Release A requirements determined by the Release B engineers are not included in this document.

3. Some Level 4 requirements described in Appendix H, as obsolete requirements applicable to earlier releases only and in Appendix I as deleted Release B Look-Ahead Requirements are traced to Release B L3 RBRs and included in the Appendix B and C as Release B requirements[2]. These. are:

Appendix H

C-ISS-04100

S-DPS-60490

S-DPS-60500

S-PLS-61020

Appendix I

S-DPS-60440

S-DPS-60460

S-DPS-60470

S-DSS-21812

4. Some requirements are listed with the same identification number and different text, in the RTM and DID 304. These are:

S-INS-60721

S-INS-60726

S-INS-60751

S-INS-60756

S-DSS-21812

5. The traceability analysis consisted of: i) Verification of traces between L3 RBRs and L4 requirements in both directions as given in the DID 304 and, ii) Comparing them with the Release B RTM database. The results indicate that 25 Level 3 RBRs in EOSD (applicable to SDPS/CSMS or both), 20 in SDPS and 9 in CSMS showed problems of traceability to Level 4 requirements. 7 Level 4 requirements in SDPS and 8 in CSMS show similar traceability problems to the Level 3 RBRs. Details of the traceability issues are given in Exhibits A-1 and A-2, in Attachment A. A summary of the issues is given below:

- 23 L3 RBRs are not traced to any L4 requirements in the RTM database and are not listed in the traceability matrices of the DID 304 (Appendix B and Appendix C)
- One L 3 RBR which is not traced to any L 4 requirement in the RTM has been included in the DID 304 with traces.
- 13 L3 RBRs in the RTM are traced to L4 requirements which are not in the L4 traces indicated in Appendix C of DID 304.
- 4 L3 RBRs in DID 304 are traced to additional L4 requirements which are not in the L4 traces in RTM.
- 13 L3 RBRs which are listed in the 304 trace reports are not found in the RTM trace report.
- 2 L4 requirements are not traced to any L3 RBRs in the RTM database and are not listed in the traceability matrices of the DID 304 (Appendix B and Appendix C).
- 8 L4 requirements which are listed in DID 304 trace report are not traced to any L3 RBR in the RTM.
- 5 L4 requirements which are not traced to any L3 RBR in the RTM, are traced to a new L3 RBR, PGS-0155#B, which is pending approval.

4. Recommendations

1. The differences between the Release Plan and DID 304, for the enhancement support to be provided for SAGE III, ALT RADAR, and ACRIMSAT should be reconciled.

2. The Appendices H and I need to be reviewed and reconciled with Appendices B and C of DID 304.

3. RTM and the DID 304 need to be updated/corrected to avoid missing traces and duplicate identification numbers with different requirement text, as identified in this TAM.

4. Suitable L 4 traces should be identified for all Release B L3 RBRs and should be included in the Traceability Matrices of DID 304 and the RTM.

5. Recommended Additional Distribution

ESDIS/Ellen Herring

6. Attachments

A: Traceability Analysis Results

Originator(s):

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Table 2.3-1. ECS Responses to IV&V Comments

IV&V Recommendations	ECS Response
The differences between the Release Plan and DID 304, for the enhancement support to be provided for SAGE III, ALT RADAR, and ACRIMSAT should be reconciled.	The Release Plan is listed as an Applicable Document. Although the Release Plan reflects the contract, the Requirements Specification (DID 304) utilizes the Technical Baseline as a reference. The Technical Baseline is updated in advance of the contract to provide a more current design basis.
The Appendices H and I need to be reviewed and reconciled with Appendices B and C of DID 304.	ECS agrees. Appendices H and I will be coordinated with the traceability of the requirements in the March 1 requirements baseline.
RTM and the DID 304 need to be updated/corrected to avoid missing traces and duplicate identification numbers with different requirement text, as identified in this TAM.	ECS agrees, and to a large extent expects to accomplish this in the March 1 requirements baseline and the corresponding republished Requirements Specification (DID 304).
Suitable L 4 traces should be identified for all Release B L3 RBRs and should be included in the Traceability Matrices of DID 304 and the RTM.	ECS agrees, although the Requirements Specification (DID 304) is expected to be republished in a different format which will preclude the need for Traceability Matrices. Traceability will be presented in the text of the document.

Attachment-A Traceability Analysis Results

Traceability Issue	Effected Requirements	ECS Response
Level 3 RBRs not listed in DID 304 trace report and with no traces in the RTM trace reports	**EOSD** EOSD0560#B, EOSD0700#B, EOSD1490#B, EOSD1502#B, EOSD1510#B, EOSD1520#B, EOSD1530#B, EOSD1600#B, EOSD1730#B, EOSD1770#B,EOSD5230#B, **SDPS** DADS2120#B, PGS-0170#B, PGS-1010#B, PGS-1015#B, PGS-1020#B,PGS-1030#B, SDPS0016#B, SDPS0115#B, **CSMS** ESN-1180#B, SMC-0330#B, SMC-1340#B SMC-3310#B	These EOSD RbRs are procedural or allocated to FOS, except for EOSD1600#B, EOSD1730#B, EOSD1770#B, and EOSD5230#B which will get traces in the next requirements baseline. These SDPS RbRs are addressed in Table 2.2-1, except for PGS-0170#B (which will have the same links as PGS-0170#A) and SDPS0115#B (which is being deleted). ESN-1180#B will have the same links as ESN-1180#A. Allocation of system wide scheduling requirements, which address the SMC RbRs specified here, is being handled as part of a cross subsystem effort. Although the final form of these requirements was not set in time for the March 1 requirements baseline, these requirements will be established prior to CDR.
L 3 RBRs listed (with trace) in the DID 304 and with no traces in the RTM trace report	**EOSD** EOSD1505#B	The traces in DID 304 were to DPS L4s that were being deleted. New traces to INS will be added, but this RbR is partially affected by the handling of attitude/orbit issue referred to in Table 2.2-1.
RBRs listed in DID 304 and not listed in the RTM.	**EOSD** EOSD0010#B, EOSD0015#B, EOSD0760#B, EOSD1703#B, EOSD2555#B, EOSD3620#B, EOSD3710#B, EOSD3800#B, EOSD3810#B, EOSD4030#B,EOSD4035#B. EOSD4036#B, EOSD5070#B,	If these discrepancies existed, few still exist (only one was identified). Regardless, the next publication of the requirements will avoid this kind of discrepancy.

Level 3 RBRs with additional L4 traces in the RTM report compared to the traces Appendix C of DID 304	L3 RBRs **SDPS** IMS-0120#B IMS- 1240#B IMS-0620#B IMS-0670#B IMS-1620#B IMS-1630#B IMS-1640#B IMS-1785#B **CSMS** ESN-0003#B ESN-0007#B ESN-0650#B ESN- 1340#B ESN- 1365#B	Additional 14 Traces in RTM S-CLS-01555 S-DMS-60300 S-DMS-30520 S-DMS-11070 S-IOS-00904, S-IOS-60360 S-DMS-01080,S-IOS-00960 S-IOS-00950 S-DMS-60300 C-ISS-02000, C-ISS-21010 C-ISS-21010 C-ISS-21010 C-ISS-02000 C-ISS-21010	The RTM database is considered to be the official copy of the requirements. The next publication of the requirements will avoid this kind of discrepancy.
Level 3 RBRs with additional L4 traces in Appendix C of DID 304 compared to the traces in RTM	L3 RBRs **SDPS** DADS0140#B PGS-0440#B PGS-0450#B SDPS0020#B	Additianal L4 Traces in DID 304 S-DPS-30810 S-DPS-30810 S-DPS-30720 S-DPS-30810	The RTM database is considered to be the official copy of the requirements. The next publication of the requirements will avoid this kind of discrepancy.
Level 4 Requirements not listed in Appendix B of DID 304 and listed in the RTM with no traces to RRRs	**SDPS** S-CLS-10075, S-DMS-01075		S-CLS-10075 and S-DMS-01075 now have an RbR parent in the March 1 requirements baseline.

L 4 requirements listed (with traces) in the DID 304 and listed with no traces in the RTM trace report	**CSMS** C-MSS-60264, C-MSS-60266, C-MSS-60268, C-MSS-66560, C-MSS-70478 C-MSS-70480, C-MSS-75100, C-MSS-75110	C-MSS-60264, C-MSS-60266, C-MSS-60268, C-MSS-66560, C-MSS-70478 C-MSS-70480 were linked to NSI IRD RbRs, pending their approval as noted in DID 304, in anticipation of entering these IRD requirements into the requirements database. This IRD has only recently been approved by ESDIS, so the corresponding RbRs have not been entered into the requirements database. These L4s will, therefore, still have no parents in the March 1 requirements baseline. C-MSS-75100, C-MSS-75110 will have Landsat IRD parents, but not in the March 1 requirements baseline.
L 4 requirements with no traces in the RTM and traced to L3 RBRs which are awaiting approval, in DID 304	**SDPS** S-PLS-00615, S-PLS-00635, S-PLS-00652. S-PLS-00654, S-PLS-0056 These L 4 requirements are traced to PGS-0155#B pending approval	PGS-0155 has not been added to the March 1 requirements baseline, so these L4s arewithout a parent in the database.

Appendix A. Pending Requirements Changes

The following table contains those responses, or partial responses, from Tables 2.2-1 and 2.3-1 which indicate requirements changes that were not implemented in the March 1 requirement baseline.

Table A.1-1 Requirements Changes Not Yet Implemented

ESDIS Comment	ECS Response
Incorrect or Incomplete Interpretation of F&PRS	
CIDM	
3) IMS 510 - Advanced planning aids are completely dropped. These are requirements and were addressed in the Hughes ECS proposal. (KM)	... New requirements will be added or traced to for B and C as this information is stored in the DDICT CI.
7) The suite of requirements that address the interface which users will access through direct dial-up from a dumb terminal/modem/phone-line access (page 4-31, section 4.2.4.2.17) is not at a sufficient level of detail or completeness. For example, will there [be] novice, intermediate and expert modes for this? what are the search, retrieval, manipulation and display functions to be supported? (RP)	The dumb terminal access issue is being revisited. In particular, ESDIS has proposed a Web interface in place of a CHUI Creation of L4s is pending resolution on this issue.
39) IMS-1730: Level-4 only addresses SDSRV CI requirements but implies human/machine interface requirements too which are not addressed in the level-4s at all. There needs to be a suite of S-CLS and potentially other non-client (e.g. operator, production) subsystem interface requirements to support this. Cross-references that allow for tracing are also not addressed in the level-4s. (RP)	We agree that one or more reporting and/or HMI L4s should have been linked to this L3 RbR and will be in the next requirements baseline. ...
40) IMS-1740: Level-4s do not address cross-referencing at all - e.g. as might be handled in the STMGT CI. Level-4s imply there is an HMI that will support this function but there are no Level-4 requirements concerning the Client subsystem (S-CLS) to support this. Nor is there references to other potential subsystem support for this (e.g. operations). (RP)	We agree that one or more reporting and/or HMI L4s should have been linked to this L3 RbR and will be in the next requirements baseline.

ESDIS Comment	ECS Response
45) Section 4.4.5.2.1, S-DMS-20900 discusses DDICT maintenance of DAR parameters and constraints for EOC and External Instrument Operations Facilities (e.g., Landsat-7). Since it is ASF's understanding that ECS will only support DAR capabilities for ASTER despite the need for DAR capabilities for other missions including Landsat-7, ERS, JERS and RADARSAT, either restrict the scope of this requirement to include only ASTER or extend it to include the full set of spacecraft for which DARs are relevant. (RD)	Agreed. The status of the ASF RADARSAT data in relationship to the contract deliverables has been checked and the scope of the L4 requirement will be restricted to ASTER in the next requirements baseline .
Data Server and Ingest	
24) The Level 4 requirements traced to DADS1350 and DADS1375 need to be expanded. (a) The system should allow for tape "sniffing". For tapes that have not been accessed over an operator-set period of time, a random sample (not all of the tapes) will be checked. (b) The term "refresh" needs to be defined in a glossary. (BK)	DSS-20920 & DSS-20925 will be mapped to DADS1370#C address this issue. ...
43) DADS 0110 "Each DADS shall receive from the IMS, at a minimum, the following: a)Documents, b)Product status dialog, c)Product orders" --> The L4's traced to this requirement address a)Documents, but do not address b) and c). (BK)	Links to S-DSS-00010, S-DSS-00020, S-DSS-00060, and S-DSS-00120 will be added for DADS0110, although this was not accomplished in the March 1 requirements baseline. But it will be added before CDR.
47) DADS 0240 "Each DADS shall accept from the SMC, at a minimum, detailed science plans" --> The only L4 which traces to this L3 is: C-MSS-36610 "The Management Agent Service shall have the capability to send detailed science plans to the DSS" . The capability to send plans to the DSS is not the same as the requirement to accept plans there. (BK)	S-INS-00010 will be linked to DASDS0240, although this was not accomplished for the March 1 requirements baseline.
48) DADS 0281 "Each DADS shall be capable of ingesting and storing data to support the instrument science team(s) in: a) Prelaunch checkout of their instruments, b) Prelaunch science checkout, c) Development of initial calibration information"--> The L4's which trace to this L3 do not address the prelaunch nature of this L3. (BK)	Links will be added to DSS-03492, DSS-03494 in the next requirements baseline. ...

ESDIS Comment	ECS Response
51) It is not clear from the requirements what happens when a session is suspended. For example, if a product request was placed as a part of a session, does processing of the product request continue while the session is suspended? (RD)	Suspension requests will be responded to at the end of the current processing step. These steps will vary depending on the type of session. So in the example, processing would continue until the end of a step - probably a PGE - but not beyond. Requirements for this will be developed for the next requirements baseline.
52) What limits are placed on users abilities to request termination of service requests? For example, a user should not be able to terminate a media product request once the media has been generated and shipped... In the "on-demand" production case, the user should not be permitted to terminate a request once processing has begun. Where are requirements for this? (RD)	Termination requests will be responded to at the end of the current processing step. These steps will vary depending on the type of session. Requirements for this will be developed for the next requirements baseline.

ESDIS Comment	ECS Response
Planning and Data Processing	
1) Non-science QA and Production History Level 3 requirement PGS-1090, "The PGS shall have the capability to provide the data product quality staff with the algorithms, calibration coefficient tables, input data sets, or other information related to product processing for the purpose of reviewing and analyzing the quality of production" traces to some level 4s that address viewing algorithms, data inputs, and metadata by the operations staff. There is no level 4 requirement for DPS or PLS to produce Production History metadata, however. This is a significant piece of information that operations must use to perform what has been recently called "nonscience QA" and it is missing. There are CLS and DSS requirements (S-CLS-13550, S-DSS-03210, S-DSS-03580, S-DSS-04200, S-DSS-04210, S-DSS-04450) that reference Production History, but there is no requirement to create it anywhere. The level 4s that trace to this requirement also imply a manual process (i.e., the operations person has to view things on a screen). We require level 4s be written to address at least the following (but feel free to be ingenious and think of other and better ways to automate): - have a script that checks each piece of Production History metadata against a file (or database table) of valid values, currently used versions of PGEs, currently created version of output products - have a script that checks that the version of the most current PGE has been staged for execution, given that we're doing processing with the current version. This would prevent reprocessing that would be needed if we ran the wrong version of a PGE against the data and didn't discover it until after processing. (DM)	To begin with, it is correct that a level 4 requirement is needed to support the generation of Production History data. A Level 4 requirement will be prepared to identify that information that will be gathered together and saved by ECS as Production History data. The analysis surrounding the wording of the Level 4s for this are ongoing. These level 4s will be included in the next requirements database. ... With respect to the two specific items identified in the comment, all metadata values will have valid ranges established that are used automatically to insure that only appropriate values are inserted. Only the established, configuration controlled versions of PGEs can be used in production to produce established standard data products. All of this information is captured automatically from the production processing activity and retained in the production history data. Previous versions of PGEs can be used to generate a product if it is determined that it is legitimate to do so, but a requirement will be added which will require operator confirmation for an 'obsolete' PGE to be used.

ESDIS Comment	ECS Response
Untraced Level 3 Requirements	
SDPS	
1) Level-3s SDPS-0016, SDPS-0022, SDPS-0092, SDPS-0093, SDPS-0094, and SDPS-0150 were omitted from the traceability Matrix in table C so these apparently aren't addressed in DID304 at all. (RP)	... SDPS0022 was only recently added to the requirements baseline due to a contract modification. L4s will be added to cover it in the next requirements baseline. SDPS0150 is in the March 1 requirements baseline with L4 coverage. ...
Data Server and Data Ingest	
2) The following requirement is still untraced. DADS2120 The DADS shall have access to the system wide scheduling information. Such information includes, at a minimum, ESDIS Policies and Procedures regarding instrument and ground event scheduling, other element plans and schedules, element allocations of ground event functions and capabilities, product thread information, and scheduling directives for testing, maintenance, and emergency situations. (BK)	Allocation of system wide scheduling requirements is being handled as part of a cross subsystem effort. Although the final form of these requirements was not set in time for the March 1 requirements baseline, these requirements will be established prior to CDR.
PDPS	
1) There are no L3 to L4 mappings for PGS-1010, 1015, 1020, 1030. I know, SDP Toolkit requirements, but shouldn't these be in DID 304? (DM)	...with the recent ESDIS approval of the SDPTK Requirements Specification, these requirements will be loaded into the RTM database and their coverage of the referenced PGS L3s will be reflected in that database. Approval of this document arrived to late to include these requirements in the March 1 requirements baseline, and therefore will not be included in the next publication of the (DID 304) document.
2) There is no L3 to L4 mapping for PGS-0595. (DM)	PGS-0595 and its RbRs have only recently been added to the requirements database due to a contract modification. L4s to address these RbRs will be added in the next requirements baseline.
CIDM	
7) Section 4.3.3.1, it is not clear how the directory service information relates to the GCMD. It appears that the ECS advertising service is in direct competition for the GCMD directory service, rather than collaborating with the GCMD. (RD)	The GCMD and advertising service overlap of information is being addressed with ESDIS' Ken McDonald, both from a Release A perspective and Release B perspective. Upon agreement with ESDIS, the L4 requirements will be modified as necessary.

ESDIS Comment	ECS Response
Data Server and Ingest	
14) DSS-20390 The STMGT CI shall provide operations staff a mechanism for recovery of data as a result of failed archive media. Note: Failed archive media are media which can not be read. --> This is extremely vague. (BK)	Agree that this requirement is vague and should be replaced with one or more specific requirements that specify how we plan to support the recovery of data from failed media and devices. The specific tools and methods are likely to be device-specific and may not be known until the Release B hardware is procured. These requirements will be included in the next requirements baseline.
3.The following requirements need the TBDs/TBRs addressed. S-CLS-10300 , S-INS-00401 , S-DPS 60440 , S-CLS-15680 , S-INS-00740 , S-DPS-60460 , S-INS-00787 , S-DPS-60470 , S-IOS-00870 , S-INS-00842, S-DPS-61040 , S-INS-00844 , S-DPS-80011, S-DMS-00210 , S-INS-00846, S-DMS-10610 , S-INS-00848, S-PLS-60420, S-INS-00850, S-DSS-03310 , S-INS-00852, S-DSS-03320, S-INS-00854, S-DSS-03330 S-INS-60210 *requir. appears twice on pg 4-157; one can be removed* S-DSS-03340 ** S-DSS-03700 S-INS-60720 S-DSS-03710 S-INS-60721 S-DSS-04320 S-INS-60721 **different text but same requir.number as previous requirement *** S-DSS-04330 S-DSS-60970 S-INS-60725 to S-INS-60781 S-DSS-61020 Table 4.10-1. LaRC DAAC LAN Network Provider Interface is TBD to external end systems, LO ACRIM & SAGE III.	... DPS replaced all but one TBD - S-DPS-61040 - which will be replaced in the next requirements baseline.

Traceability Issue	Effected Requirements	ECS Response
Level 3 RBRs not listed in DID 304 trace report and with no traces in the RTM trace reports	**EOSD** EOSD0560#B, EOSD0700#B, EOSD1490#B, EOSD1502#B, EOSD1510#B, EOSD1520#B, EOSD1530#B, EOSD1600#B, EOSD1730#B, EOSD1770#B,EOSD5230#B, **SDPS** DADS2120#B, PGS-0170#B, PGS-1010#B, PGS-1015#B, PGS-1020#B,PGS-1030#B, SDPS0016#B, SDPS0115#B, **CSMS** ESN-1180#B, SMC-0330#B, SMC-1340#B SMC-3310#B	These EOSD RbRs are procedural or allocated to FOS, except for EOSD1600#B, EOSD1730#B, EOSD1770#B, and EOSD5230#B which will get traces in the next requirements baseline. .. ESN-1180#B will have the same links as ESN-1180#A. Allocation of system wide scheduling requirements, which address the SMC RbRs specified here, is being handled as part of a cross subsystem effort. Although the final form of these requirements was not set in time for the March 1 requirements baseline, these requirements will be established prior to CDR.
L 4 requirements listed (with traces) in the DID 304 and listed with no traces in the RTM trace report	**CSMS** C-MSS-60264, C-MSS-60266, C-MSS-60268, C-MSS-66560, C-MSS-70478 C-MSS-70480, C-MSS-75100, C-MSS-75110	C-MSS-60264, C-MSS-60266, C-MSS-60268, C-MSS-66560, C-MSS-70478 C-MSS-70480 were linked to NSI IRD RbRs, pending their approval as noted in DID 304, in anticipation of entering these IRD requirements into the requirements database. This IRD has only recently been approved by ESDIS, so the corresponding RbRs have not been entered into the requirements database. These L4s will, therefore, still have no parents in the March 1 requirements baseline. C-MSS-75100, C-MSS-75110 will have Landsat IRD parents, but not in the March 1 requirements baseline.

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